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The Live Stock Situation and Outlook

By N. A. CLAPP

IF we review in our minds the things of the greatest importance in order that our national life be sustained, and that we may be able to render to the cause of universal liberty which we are now striving to secure, our best and most efficient service, we will see that the animal food or meat supply should be given primary consideration. The grains and vegetables may make living possible, but we must have some meat at home and in the army in order to possess the vim, vigor and courage necessary to carry us successfully through the hardships of the present crisis.

The unfavorable years of 1915 and 1916 caused stock raisers to become discouraged; they not only halted, but sacrificed their breeding stock, letting it go unreservedly to the shippers and the butchers. Efforts were made through the agricultural press to prevent the unwise procedures, but it did not bring the desired results. The high prices paid for both meat animals and grains brought a pressure to bear on the producers that seemed irresistible. The present profits were immediately before the stock raiser's eyes, and they accepted what they had in hand, and abandoned the possible prospects for better returns in the future. The result is well known. As far as meat animals are concerned, whether cattle, sheep or hogs, Michigan has much less than a normal supply; nor will there be a reasonable supply of what is actually needed as long as the practice of selling nearly all the calves for veal, the ewe lambs for mutton and the brood sows for pork. It seems like a criminal practice to cut off the possibilities of supplying the future needs of the country by such reckless sacrifices.

An Unwise Sacrifice of Stock.

In the past I have been accused of being over zealous in my seeking to justify the actions of the farmers in their efforts to secure, not only a living on their farms, but to save and lay by a competence for old age; but when the dairy cows are sold for meat because beef is high in price, breeding ewes are sold because mutton is high in price, and all the hogs on the farms are sold because the prices for pork are high, I confess that my perceptive faculties are not keen enough to see the wisdom in such practices. It may cost an extra effort, sometimes, to carry the breeding stock over an unfavorable season, but the advantage of keeping the "seed of the kind" must be apparent to the average mind.

Farms without stock of any kind, except, perhaps, the work horses and a few hens, when grasses and other feeds are going to waste because there is nothing to consume them and turn them into meat, is an evidence of "slackerism" of a very undesirable type. The farmer's family needs the products from the cows, the sheep and the hogs, and the armies which are contending for equal humanity rights are in need of all that can be spared for them. Meatless days are not diffi-

cult to endure in the home, but the men who are enduring the hardships of army life, need the full rations made up of the best cereals, vegetables and animal meats, in order that they may serve their country well and guarantee to those who are near and dear to them the possibilities of freedom and happiness while life shall last.

More Sheep and Hogs Needed.

Luckily for all concerned, all farmers have not abandoned their herds and flocks. With the exception of some portions of the south, notably Texas and Oklahoma, where a severe drouth has prevailed, conditions for producing grass-fed beef cattle have been pretty good. In the markets of the middle west, west, and northwest, cattle have

been coming forward in considerable numbers. During the first nine months of the year more than two million more cattle were sold in the great markets of the country than were sold during the same period of last year. The showing of cattle is encouraging, but the showing of sheep and hogs is discouraging. During the period mentioned the number of hogs sold was nearly two and a half millions less than last year, and the number of sheep was nearly a million less than last year.

The September run of cattle this year was nearly a half a million more than last year. The September run of hogs was more than a half million less than last year and of sheep nearly as

bad a showing. Some of the diminution in numbers may be accounted for with the hogs when we consider that on account of the poor corn crop of 1916 many hogs were sent to market that would have remained on the farms if there had been an abundance of feed, and the prices for feed had not been abnormally high.

Radiant Prospects Ahead.

In our great country where there are large areas of fertile valley and mountain slopes, where nature's choicest benediction, grass, grows in great abundance on which live stock can not only live but can thrive, and the unlimited demand for all kinds of meats at remarkably high prices, the opportunities for making large sums of money by keeping live stock on the farms are better than ever before. It does not seem as though it was necessary for a patriotic appeal to the farmers in order to stimulate a greater interest in live stock raising; the impelling force of business seems sufficient. What is necessary is a vigorous and persistent effort along all the lines of live stock raising. The reward is waiting for the claimants who may seek for it and will win it.

Whether the work is prolonged for several years, or is brought to a speedy close, the demand for all kinds of live stock at high prices is sure to be great. The European countries and the British Isles are sure to be stripped of a large percentage of all kinds of live stock. Those countries will naturally look to America for the kinds of stock which they desire, for they know that what is needed, as far as quality is concerned, can be secured here. Those who have a supply of such as will be demanded will be in a position to claim a reward for the efforts required to meet such demands as are sure to come.

Hogs the Much Sought Animals.

As has been mentioned in former articles, pork meats are most convenient and safe to handle under greatly varying conditions. Pork meats are relished by most men who are brought under strenuous conditions; it fits in with other kinds of food and helps in repairing the wasted and injured tissues in various parts of the body, and keeps up the heat and energy of the body.

In consideration of a high appreciation of the merits of pork meats, according to published reports, the United States government has made a special offer to induce farmers to breed and feed hogs. The proposition is to pay the price of fourteen bushels of corn for a hundred pounds of pork. As it is generally believed that it requires under favorable conditions, only about ten bushels of corn to produce one hundred pounds of pork, the price guaranteed ought to induce farmers to make a special effort to breed and raise large numbers of hogs. The prize is before them and it is the privilege of every farmer to secure a portion of the enormous sums of money that will be paid for pork meats during the war.



A Few Sheep Could be Profitably Kept on Nearly Every Michigan Farm.

We produced in 1916 only 35 per cent of the wool that we used. We have never seen such a price of wool as exists at the present moment. There is every reason in the outlook and in profit for the increase of our sheep. There is very little possibility of such increase on our western ranges for many reasons. There is, however, the general fact that anywhere from three to twenty sheep could be added to almost every farm. They would feed upon material that would otherwise go to waste; and in the aggregate would furnish the United States with the greatest flock of sheep in the world.—Herbert Hoover, U. S. Food Administrator.

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DETROIT, NOVEMBER 3, 1917



CURRENT COMMENT.

Michigan bean growers and dealers have awaited with keen interest the government announcement as to prices which would be paid for beans for army use. As our forms for this issue were closing, information was received that a current price for army bean purposes had been fixed. In substantiation of this information, Mr. W. J. Orr, President of the Michigan Bean Jobbers' Association and Michigan member of the committee charged with the responsibility of bean purchases for the army gave out for publication the following telegram from the Food Administration in which the prices named are in cents per pound:

The following prices will apply to dry beans for the army, placed during period October 5 to November 15, 1917, f. o. b. San Francisco, Cal., common point, California, choice white beans small 11; medium 11; red pink bayo 8½; Lima 11½; kidney 10½, f. o. b. Colorado and New Mexico: Pinto beans 7½, f. o. b. Michigan: Chocie handpicked white beans 11½, f. o. b. New York state, New York, choice hand-picked white beans 11½. Beans must meet requirements of army specifications, basis single bags, double bags one-eighth cent advance.

It seems apparent that these price conclusions must have been based upon previous government estimates of the bean crop rather than upon present conditions, including unfavorable weather for maturing and harvesting the crop, especially in Michigan and New York, and the consequent lessening of the total yield and depreciation of quality which will still further affect the total of the merchantable product. This logical conclusion is substantiated by the fact that the prices fixed for government purchases cover the period only up to November 15, when more accurate information with regard to the actual yield and quality of the crop will be available.

The price of 11½c per pound for Michigan beans, as above fixed, would mean \$6.90 per bushel for the hand-picked product in bags, f. o. b. Michigan common points. Deducting the cost of bags and the actual cost of handling, together with the small profit which the handlers are to be allowed under the license plan, this would mean a \$6.00 basis to the grower for beans which have been bringing from

\$8.25 to \$8.50 for domestic consumption. Of course, the above prices affect only purchases for the army and not for consumption by the civil population.

Owing to the unfavorable weather conditions which have prevailed for harvesting and threshing the crop, only a very small percentage of the crop has been marketed, and these have gone immediately for domestic consumption, so that comparatively small stocks are on hand in Michigan elevators, a large number of which have suspended buying entirely until the effect of the above price determination is settled. Of course, Michigan bean growers will be quite as reluctant to sell their bean crop on a \$6.00 basis as will the dealers to purchase beans at recently prevailing market values with the above price fixed for current army requirements. The inevitable result will be an almost total suspension of movement of the crop prior to November 15.

In the meantime every effort will be made to place the Food Administration in possession of first-hand information with regard to the present bean crop situation in Michigan, where such a large percentage of the country's white bean crop is produced. In consideration of the government's announced policy of allowing producers the cost of production plus a reasonable profit in the making of all government war purchases, there seems little room for doubt that this schedule of prices will be advanced when final information with regard to the crop becomes available.

In the meantime, every Michigan bean grower who has not yet secured his crop, of which there are thousands, should make every effort to secure it with the least possible damage from the exceedingly unfavorable weather conditions which have prevailed during the weeks in which they have been trying to get the crop under cover. The country will need all of the beans that can be saved in the present food emergency.

The standardization of any product is, under normal conditions, a decided advantage to the grower who produces a first-class product, particularly where that product is sold in a market which is well supplied with a similar article of ordinary quality. A standardized product also appeals to the trade and to the ultimate consumer who wants a first-class product.

The movement for the standardization of potato grades was started by the government at a time when it appeared that we would have a record-breaking crop of late potatoes. This plan was well calculated to serve the interests of both growers and consumers under conditions which made it appear that there would be a surplus of late potatoes over the requirements for domestic consumption. But with the advent of the potato harvest season, and the realization of a much smaller average yield than was anticipated in many important growing sections, together with a general desire on the part of consumers to make sure of their winter's supply of tubers, prices have ruled unexpectedly high and there has been a liberal movement of the crop from grower's field to consumer's cellar by unusually direct routes. These movements have been largely of ungraded stock, just as they were dug, where the crop has been of a quality to be practically all suitable for human food. This movement has been at a price which was remunerative to the grower and as high as consumers, as a class, could well afford to pay. Should these conditions continue to prevail a general grading of potatoes which would hold sound potatoes, fit for human food from the market and divert their use to the feeding of live stock would be an unwarranted economic waste.

The standardization of bean grades has undoubtedly been a good thing for growers, as well as dealers and consumers under normal conditions. Such standardization has helped to make the bean industry one of first importance in this state. But under present conditions a strict adherence to established standards of quality will work a hardship to both producers and consumers. Owing to the late season, the early and destructive frosts and the exceedingly unfavorable weather for the securing of the late bean crop, there will be at least a million bushels of the Michigan bean crop which will be from fifteen to thirty pound pickers if they are to be converted into established standard grades. Yet a large percentage of the beans which will be unmerchantable under established methods of handling would be good human food and should be used for that purpose instead of being used for stock feeding purposes in the present emergency. It would be an undoubted benefit to both producers and consumers if a uniform market grade of lower quality than those to which the trade has been accustomed could be established as a means of utilizing this class of beans. Under such a method of handling them they would bring the grower double what they will under established marketing methods and at the same time afford consumers a large amount of food at far cheaper prices than they would be obliged to pay for standard grades as now established.

Standardization in the marketing of farm products is undoubtedly a valuable ideal under normal conditions, but its consummation should not be permitted to lessen the available supply of human food in the present emergency, when food saving is the slogan of the nation.

In a recent press bulletin published by the United States Geological Survey some interesting

statistics with regard to the use of ground limestone and marl as a soil amendment are given. These figures show the production of ground limestone in nine states which produced seventy-three per cent of the total tonnage. A little over 1,000,000 tons of ground limestone were produced in 1916. The output of ground limestone has steadily increased since 1911 when figures of production were first compiled. During the last six years the output has increased 512 per cent. The increase for 1916 as compared with the previous year was about thirty-two per cent. Michigan is not included in the nine states for which the above figures are given, but is one of twenty-three other states which contributed the balance of the total tonnage.

The same bulletin also shows the commercial output of calcareous marl used for soil sweetening in these states of which Michigan is not one, to have been something over 35,000 tons in 1916, this being the first year for which figures are available. This, of course, does not include the marl moved and applied in a local way by farmers from adjacent marl beds.

The rapid annual increase in the use of lime on the soils of the states mentioned speaks volumes for the value of lime as a soil sweetener and should be convincing proof to Michigan farmers who have not as yet tried out the effect of lime on their soils to make an experiment along this line at an early date. The numerous object lessons which have been afforded in the many communities where lime has been used are of such a convincing nature that wherever a farmer learns of such a trial within easy reach, he should by all means make a personal investigation as to the results secured.

There is no one thing more needed on very large areas of Michigan soils than the sweetening effect which is secured by the application of lime in either of these forms. Wherever clay-

er has failed to catch readily and grow luxuriantly, it is an almost certain indication that lime is needed, and in every such case the owner should not delay another year before making at least a small experiment to determine the beneficial effects which may be derived from an application of lime to such soils.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Austro-German armies are shaking the entire Italian line from the Adriatic sea to the Julian Alps. During the past week 100,000 Italian soldiers have been captured, and over 700 guns taken by the central powers. The towns of Cividale and Gorizia, a point of great strategic importance, are now in the possession of the Teutons. It is believed that large forces of Germans were taken from the Riga front to aid in the Italian campaign. Field-Marshal Von Mackensen is directing the drive under the command of Emperor Charles of Austria. In the Riga region on the Russian front the Germans have retreated to positions along the Duna river. They made no further effort to land forces on the mainland after the repulse by the Russians a week ago. Conflicting reports are current regarding the morale of the Russian forces; some, including Kerensky, indicate that a great improvement has taken place and that the Slavs will become a force in the mighty conflict this coming year, while others state that unless some great leader who can command the following of the different parties and peoples of Russia comes forward soon, the Russians are done so far as having any part as a military organization in the fighting from now on.—United States troops are now fighting on the western front. Last week General Pershing ordered infantry to march to the first lines somewhere in France. American artillery has already engaged the enemy. Other units are to move to the front soon. The French and Belgians cooperating have captured several important salients in the region of Dixmude. They are also bombarding German positions along the Aisne front. Last week important advances were made toward Laon. The British have greatly improved their positions along the Ypres-Roulers railway.

It is reported that a million dollar fund has been provided by the Central Powers to be spent in eight neutral Latin-American countries to give the impression that the Liberty Loan in the United States was a failure. The movement is designed to prevent those countries from joining the Allies. In this connection a campaign is now being fostered by Mexican leaders looking toward that country's uniting her fortunes with the Allies against the central powers.

A new government is being formed in Italy. Professor Orlando has been asked to undertake this difficult task at a time when the Italian people are disheartened through the success of their enemies on the northern frontier.

National.

Reports from Washington indicate that the Liberty Loan subscriptions have passed the \$5,000,000,000 mark. During the last day of the campaign fully \$1,000,000,000 was subscribed. At least 8,000,000 persons made subscriptions to the loan.

This is Food Pledge week throughout the United States. The campaign for food conservation under the direction of Food Administrator Hoover is being carried on systematically in every country of the several states. On Sunday churches of every denomination undertook to impress the significance of the conservation move upon their audiences.

Governor Townsend, of Delaware, was injured, and his wife killed in an automobile accident Sunday night. In an effort to avoid colliding with a team during a storm, his car skidded and turned over twice, resulting in the tragedy.

Two boats were sunk on the Great Lakes on Sunday. The barge Aloha foundered west of Kingston, Ont., sinking in twenty-five feet of water. Her captain, Daniel McVicar was drowned. The barge Abyssinia with 115,000 bushels of wheat aboard went to pieces on a reef a short distance from Buffalo.

One man was killed and five seriously injured and a dozen more badly bruised and shaken up in a rear-end collision on the interurban line south of Mason early last Sunday morning. The failure of the brakes to work properly caused the accident.

The Elgin Butter Board which has been an important factor in establishing the basic price for butter over a greater portion of the country may be closed at the request of the federal government.

Results With Sheep In the Upper Peninsula

By B. W. HOUSEHOLDER, Supt.

THE Upper Peninsula Experiment Station has worked on sheep projects during the past five years with results as set forth in the following report:

1912. One hundred and sixty acres of land cleared and seeded. Two hundred and fifty-nine yearling wethers used to clean up small brush, forming the initial trial in the use of sheep in this section as an aid to other land reclamation methods.

1913. Three cars of yearling wethers (700) pastured on land seeded the year before. Stand of seeding almost perfect. Kept down brush.

Seeding Methods.

1915. During the last three seasons, different methods of seeding stump land for pasture have been employed. The best seeding was secured by allowing sheep to eat off all green stuff, then the seed sowed with a knapsack seeder and the sheep held on for a week to tramp in the seed. This was done in August. Pastures seeded in 1912 with timothy and clovers still have an abundance of clover. The proposition of buying sheep in the large markets early in summer, pasturing until fall and selling again has been tried out. It was found that unless the sheep were small and thin when secured, it would not pay out so far as the sheep were concerned under ordinary market conditions. It was found, however, that the sheep would fatten rapidly on the natural plant growth of the country, as well as on seeded pasture and be of great value in clearing land and preventing second growth. Work is being carried on now which includes raising the pasture for live stock, sheep and cattle, on the place. Five yearling steers of mixed breeding and poor beef conformation were put on seeded pasture August 1, 1914, and had gained on November 1, 1914, three months, an average of 217 pounds each.

1916. There were 252 sheep on the Station in 1916, including Rambouillet, Hampshires and Western Range ewes. The increase in the flock was about seventy-five per cent.

Unexcelled Opportunities.

1917. Opportunities for the development of the sheep raising and grazing industry in this portion of the state are incomprehensible. Very few people have awakened to the situation as yet. Thousands of acres that could be utilized for sheep pasturage lay idle

and grow up to brush every year. Some have discovered the wonderful possibilities of this phase of agriculture in the Upper Peninsula and have proved its success. The experimental days to prove it a good thing are about gone. The proposition today is to scatter the good news and get more people interested. There are thousands of acres of undeveloped land in this part of the state ready to grow luxuriant pastures, clovers, roots and small grains suitable for sheep raising.

The usefulness of sheep to land clearing has been extensively proven and they are in use for this purpose on the Station farm every year, as well as for their economy in wool and mutton production.

The following is an annual report of the sheep industry upon the Station from July 1, 1916, to July 1, 1917:

Investment.		Value.
No. of breeding ewes, 116....		\$ 696.00
No. of wethers and culls, 49..		245.00
No. of rams, five.....		125.00
Valuation of building.....		1,200.00
Land pastured, 40 acres (estimated)		1,000.00
Total		\$3,266.00
Costs.		
Care through winter, 1½ hrs. per day at 25c.....		\$ 67.50
Cost of shearing.....		18.00
Extra cost for labor at lambing time		15.00
15 tons of hay bought December, 1916		196.75
7.36 tons of hay bought January, 1917		92.75
2.46 tons of hay bought March 5, 1917		36.88
1 ton of hay bought March 27, 1917		11.30
1 car hay, 4-6-1917, 29240 lbs., at \$12.60		147.29
Corn		36.13
Bran		26.40
Oats		47.64
Salt		5.00
Roots, 10 tons		40.00
Accessories		2.18
Summer care 2 hrs. a week for six months at 25c.....		12.50
Total		\$ 775.32
Receipts.		
Wool 1066 lbs. at 55c.....		\$ 586.30
Wool 16¼ lbs. at 50c.....		8.12
Rams sold, five.....		120.00
Old ewes and wethers sold, 88		488.60
One lamb		5.60
Total		\$1,208.62
Manure value (estimated at ½), 99 tons		198.40
Lamb		5.32
Total		\$1,412.34

Value of Flock After Selling Above 95: Breeding ewes, 125 at \$7.....\$ 875.00 Ewe lambs, 32 at \$7..... 224.00 Rams, two..... 75.00 1917 spring increase in lambs, 109 at \$5..... 545.00

Total valuation\$1,719.00 Interest on investment, \$3,266 at six per cent..... 195.96

Results. Total receipts\$1,412.34 Increased valuation 653.00

Total gain\$2,065.34

Total Costs. Feed, care, etc.....\$ 775.32 Interest on investment 195.96

Total\$ 971.28 Net profit\$1,094.06

The time covered in the care of one and a half hours per day should be doubled by the average farmer who has not the conveniences for caring for sheep which are provided us by the state. It is our intention to give a very conservative statement of our work so as not to mislead anyone into going into the sheep game and losing a small fortune by it. Sheep are very tender animals and the sheep business is not one to be gone into by everyone. Every person has his limitations. Some are much more limited than others and before advising anyone to go into this industry, it would be well to say that he should consider his own capability financially and mentally in regard to the work.

Profits Conservatively Estimated.

In looking over the report, one will notice that in order to make this profit on the investment, the present valuation was not placed on the estimated value of the flock left. Instead, they were valued at what they are worth under ordinary conditions to show that, with average prices, sheep are good money makers. None of the above sheep would be sold at the figures given in the estimate as market prices are almost double that amount.

Ration for breeding ewes consisted of about three pounds of clover hay, one pound of rutabagas per day and salt licks and water whenever they wished them. About four weeks before lambing they were fed daily one-fourth pound of grain, corn, oats and bran in equal parts each. After lambing, the grain ration was increased to half a pound per ewe per day until turned on pasture. The ewe lambs were each fed one-fourth of a pound of the above

grain mixture daily all winter, about two and a half pounds of hay, one pound of rutabagas daily, with salt and water whenever they wished it.

Breed Comparisons.

The sheep on the Station consist of three breeds, Rambouillet, Hampshire and grade Western ewes. Our experience with these sheep for the past two years has been that the Hampshires have given the best results. Given the same care as the other breeds, they come through the winter in much better condition than either the Rambouillet or grade Western ewes. Their lambs have also excelled by far those of the Rambouillet sheep, both in size and strength. This year the average weight of Rambouillet lambs twelve weeks old is about twenty-five pounds, while the weight of the Hampshire lambs of the same age averages close to forty pounds each. The difference between the size of the lambs from the Western ewes sired by Hampshire rams is not so great. In general, these lambs are larger and stronger than those of the Rambouillet breed. These results have been observed by me for a period of only two years and the work will be continued through a series of years before any definite statement will be made in regard to which is the best breed for the conditions of the Upper Peninsula.

There is no question but that sheep are valuable animals to this country with all of its cut-over lands to be cleared of brush. And, as an aid to the settler whose financial means are limited, there are no animals more valuable than a small flock of breeding ewes. They not only produce wool to pay for their keep and a little more, but reproduce from seventy-five to one hundred per cent or more (if cared for) nearly every year for profit and help the settlers to clear their land of small brush and weeds. If sheep are pastured on brush while it is still small, they will entirely destroy it, leaving only the stumps, and those in a rotted condition, for the settler to contend with and the land more fertile for tilling. However, brush alone does not furnish a complete diet. Some grass seed should be sown among the stumps, as described above.

Editorial Note.—These costs and results will apply equally well to large areas of cut-over and partly developed land in the lower peninsula and are worthy of careful study of every Michigan Farmer reader.

Buy the Herd Boar Early

By PAUL H. EATON

FOR March pigs, the breeding must begin in November. March, or even the latter part of February, is none too early for spring pigs if they can be farrowed in good warm quarters so the little pigs will not suffer from the weather. With the breeding time beginning in November, it is well to begin early to consider the purchase of a new herd boar if one has not already been procured. Some years ago when we kept only a few sows for breeding purposes, we bought a boar in conjunction with a neighbor who had only a few hogs, and in this way each saved some expense. This scheme will work out well where the same breed of hogs is used and there only a few sows in each herd to be served.

In the purchase of a boar, the breeder will be governed largely by his own likes and dislikes in picking out an animal. He is well acquainted with his sows and can judge best the type of animal which will bring into his herd the qualities which he desires and which seem to be lacking. The boar furnishes fifty per cent of the producing power of the herd so will have vastly more influence on the herd as a whole than any one sow, consequently it is of considerable importance that the breeder satisfy himself that the boar he chooses is strong and vigorous

and of good type. He must be capable of transmitting desirable characteristics to his progeny. I will not attempt to describe a perfect boar, each breeder has his own choice in this matter. However, the boar should be well built along perfect lines, have good bone and muscle and stand up well on his toes with no indication of weakness.

By all means a pure-bred boar should be selected to head the herd. He should be vigorous and prepotent and his dam and sire should possess desirable characteristics. It means the maintaining of a good standard of quality in the pigs if they are already well developed, and if not, it will mean a great deal toward building up the breed

into better pork-producing hogs. However, there are runts among the pure-breds as well as among the grades, so he must not only be a pure-bred but must possess the desirable characteristics of good stock. It will mean the production of pigs that will make bigger gains in fat from every bushel of corn fed when they are being prepared for the market, and that is a most important factor to the successful hog raiser.

We find it best to prepare permanent quarters for the herd boar a little apart from the rest of the hogs. This makes it so he is quiet and not excited by the other hogs so he does not easily become cross. He also becomes accustomed to being handled. He requires a good dry, well-ventilated pen, warm in the winter and well lighted, and he should be provided with plenty of fresh bedding and clean water. A small yard should be provided for a breeding pen, and a pasture of a half acre or acre sowed to alfalfa, clover or other forage provides an excellent place for his exercise and feeding.

Until a few weeks before breeding time, it is better not to over-feed him but keep him in a good healthy condition. Three ears of corn a day, together with a little slop made up of shorts,

(Continued on page 424).



Cattle on the Northern Michigan Farm of Geo. H. Poquette, Emmet County.

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Michigan Potatoes To Be Graded

By C. W. WAID

State Potato Specialist

THE recently organized Michigan Potato Shippers' Association is making strenuous effort to put up potatoes for shipment this season in accordance with the recommendations of the Food Administration and Bureau of Markets at Washington. This effort gives promise of being the most widespread and strongest ever made to grade potatoes. The success of this movement will not only depend upon the attitude of the dealers as a whole but of the growers as well. While very serious difficulties will confront these men, especially when the work is first started, if everyone concerned lends a helping hand instead of either being indifferent or trying to hinder the work the objects will be accomplished.

There are very few other important crops which have not to some degree at least been standardized and it is high time that the potato is taken out of the "no standard class." In view of the fact that this work has been taken up during the last two weeks it is going to be very difficult to do everything as the shippers would like to have it done and no doubt there will be some who will be disappointed in the results at first. If, however, such men will be patient I am satisfied that the time will come when grading will justify itself fully. It is not only to the interest of the dealer but to the grower and consumer alike that the potatoes should be graded. It will enable the grower to be paid a premium for quality, a thing which has not been possible heretofore. The dealer will have something more staple to work upon and as a result prices should not fluctuate as much as has been the case in the past and the consumer should have a better product for the money expended.

All organizations of growers which do a shipping business will find it to their advantage to grade in accordance with the recommendations herein specified.

The potatoes will be put up in United States Grade No. 1 and United States Grade No. 2, a description of each which follows:

United States Grade No. 1 shall consist of sound potatoes of similar varietal characteristics, which are practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cut, scab, blight, dry rot, and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be one and seven-eighths inches, and of potatoes of the long varieties one and three-fourths inches. In order to allow for variations incident to commercial grading and handling, five per centum by weight of any lot may be under the prescribed size, and, in addition, three per centum by weight of any such lot may be below the remaining requirements of this grade.

United States Grade No. 2 shall consist of potatoes of similar varietal characteristics, which are practically free from frost injury and decay, and which are free from serious damage caused by dirt or other foreign matter, sunburn, second growth, cuts, scab, blight, dry rot, or other disease, insects, or mechanical means. The minimum diameter shall be one and one-half inches. In order to allow for variations incident to commercial grading and handling, five per centum by weight of any lot may be under the prescribed size, and, in addition, five per centum by weight of any such lot may be below the remaining requirements of this grade.

In addition it is the recommendation of the Michigan Shippers' Association that all coarse, overgrown or hollow

potatoes be sorted out of these grades and be considered as culls.

A tag will be used on the potatoes which are sacked to indicate the grade. It will be marked as indicated:

MICHIGAN

U. S. Grade No. 1

..... No.

The space after the number will be used later to stamp the number of the shipper. This will not be done at first.

There is no objection, and in fact, the shippers favor the farmers doing their own grading, in which case only the potatoes which are marketable would be hauled to the shipping point. Many farmers who are rushed to get their crop dug and marketed will probably not wish to do this work themselves. Those who store the crop and have sufficient room may find it to their advantage to do the grading.

Cull potatoes will be much more valuable for feeding purposes this year than usual because of the high price of corn and other feeds. According to some recent calculations made by the Department of Agriculture four and one-half bushels of potatoes is equivalent in feeding value to one bushel of corn.

FARMERS CAN HELP RELIEVE FUEL LACK.

The shortage of fuel which threatens to cause suffering this fall in many sections of the state can be partially relieved, at least in the rural communities of Michigan, by the judicious use of cord wood from farmers' woodlots, in the opinion of Prof. H. K. Chittenden, of the Department of Forestry of the Michigan Agricultural College. Farmers, he states, should be able to profitably supply their immediate communities. It will be for the purpose of showing how this can be most economically done that an expert from Washington will visit the state November 1 and for two weeks following.

This representative of the federal government, cooperating with the forestry department of the college, will in these two weeks visit a number of Michigan communities, among which will be Frankfort, Grand Haven, Jonesville, Harbor Beach, Charlotte, Ludington, Galesburg, Ionia, Ypsilanti, Williamston and Bennington. In each of these towns he will meet with farmers and discuss with them the best methods for selecting such timber as may be desirable for cutting, questions of marketing, etc.

"Railroad rates are such as would make it unprofitable for farmers to ship out cordwood," says Professor Chittenden, "but with coal prices as they are, there is no doubt that if owners of woodlots will use judgment in the selection of timber desirable for cordwood purposes, they should be able to lighten the demand for coal in rural communities and in towns adjacent to them. It is not recommended, however, that woodlots be indiscriminately chopped down. There is no emergency existing which would justify such drastic measures."

There is a large crop of potatoes in Michigan this year, but not as large as it would have been had the frost held off to a later date. However, there should be a sufficient supply for all and it is to the interest of the growers, dealers and consumers alike that a considerable proportion of this crop be in the hands of the consumers before winter sets in.

Squirrels aren't the only animals that are laying by a store of nuts this fall. We know many patriotic farm boys who are going to eat them this winter instead of candy.

HOW TO PRODUCE MORE FOOD.

With our country at war one of the big problems is how to produce more food. All are looking to the farmer, on whom the country is so dependent, and watching his efforts to produce a big crop with which to feed the soldiers and the nations. Very much has been said and written about this problem, and I think the farmers have done their utmost, too, to produce as much as possible, yet I think very many mistakes have been made. Very many thought, and this advice was often given, that by increasing their acreage of cultivated crops they would be able to produce more food and thus solve this problem. But now, with the season just about at its close, many a farmer will see that he made a mistake by putting out too many crops which he was unable to handle in the way it should have been done. Many a field grew up to weeds so that it hardly paid to harvest the crops at all, which meant quite a loss to the farmer and to the country as well.

Now to prevent such losses in the future, and produce more food which they are aiming at, farmers will have to follow a different plan. In trying to produce more food I think the best and most profitable way would be to increase the yield per acre of every crop planted. To get a bigger yield there are many things a farmer must think about. In the first place I would say plant only as large an acreage as you can care for with your help, the way it should be done, and no more. In the second place, and this is one of the main points, too, in getting bigger yields, make your land a fit place for plants to grow upon. To get your land in a condition so that it will be a fit place for plants to grow, first of all make it dry, for no plants except weeds will grow well on land which is too wet. Yet much of your wet land would be your very best if it were drained. To get rid of the superfluous water it should be tiled or ditched through all the low places. This is what ought to be done from now on, and all the farmer's spare time should be put into this job so that by next spring when the snow thaws again and heavy rains come, the superfluous water will have a chance to get away, which will make it possible to get on the land with a team when it is time to put in the crops and to get the seed bed in good condition for planting.

To get his land in good shape I suppose every good farmer knows how to plow, then disk and harrow it so that it will be in good condition to sow or plant his crops, yet very often there is one thing which many a farmer doesn't think enough about, and that is whether there is plenty of plant food in the soil to produce a big crop and increase the yield per acre. Every farmer can easily imagine that even if his land is in first-class condition for a seed bed yet contains little plant food, that it will not produce a good yield, no matter how much work he has done to get it in good shape. To get a rich soil with plenty of plant food that will make plants grow there should be applied a good coat of manure every year for every crop. But you may say, "We don't produce enough manure to cover all our land and that can't be done either." But to overcome this difficulty what can easily be done is to use fertilizer where you can put no manure. You will be surprised how big a profit you will make at a very small cost, because you will produce bigger crops which will help yourself and the country, and at the same time you will build up your farm.

Therefore, in trying to produce more food every farmer should give particular thought to the following points:

1. Plant only as much as you can care for.
2. Make your land a fit place for plants to grow, by properly draining it.

3. Lime your land to take the sourness away, which will also help to get better results from your manure and fertilizer.

4. Put on all your land, every year for every crop, a good coat of manure or fertilizer, and with a good season you may expect to get an excellent crop and help to solve the problem of producing more food.

Osceola Co.

J. FRANSSENS.

THE COST OF GROWING WHEAT.

In the interest of accuracy concerning what is now the very important matter of the cost of production in many lines, it seems worth while to point out some of the untrustworthy results that spring from the careless use of the much-abused law of averages.

In the interesting article with the above caption in your issue of October 20, Mr. Hutchins reaches conclusions which, if sound, would make the efficient wheat grower wealthy in a few years and fine the unfortunate consumer for the gross inefficiency of the incompetent farmer.

An average yield of wheat in Michigan of fourteen bushels per acre is anything but a credit to the state.

It means that hundreds of incompetent farmers are growing far less than fourteen bushels per acre and expecting to be carried along by the consuming public because of the average cost of growing wheat, which cost is high because of their incompetency.

There are plenty of good farms and good farmers in Michigan that can and do produce twenty bushels of wheat and upwards per acre, and perhaps no one would object to crediting such with six per cent on a land valuation of \$150 per acre as an item in the cost of growing wheat, though it is clear that land may easily become too valuable for such use.

But when we take the case of the "buckwheat farmer" who continues producing less than the shamefully low average of fourteen bushels per acre, it is plain that he is a public misfortune and should not be allowed to vitiate averages and pile up the cost of production. Much less should he be rewarded for it. His land may perhaps produce fair crops of buckwheat or rye but it is usually worth much less than \$50 per acre.

Fortunately for the consuming public the prices of farm products are not determined by the relatively low yields in the areas in which either the natural conditions are unfavorable or the farmers lack enterprise, or both. Fortunately, Michigan's low yield of wheat per acre, and therefore its high cost of production cannot fix the price of wheat.

Clearly, it would be a very large undertaking to ascertain the cost of growing a bushel of wheat in the United States alone, and to be of any great value the inquiry should cover other large wheat-growing areas as well.

There is inherent viciousness in averages when narrowly used as the basis of prices. It coddles inefficiency instead of tending to eliminate it.

In lines of production other than farming those who fall short of a certain standard of efficiency are crowded out. When the rule of averages is applied, as Mr. Hutchins would apply it, the incompetent farmer, instead of being penalized as he ought to be, is rewarded at the expense of the consumer.

Surely, the real farmer whose good land and equipment are worth \$150 per acre, as Mr. Hutchins gives it, is not content with a paltry yield of fourteen bushels of wheat per acre, and he is buying automobiles and bonds. The fallacy lies in going to him for the expenses of production and going to the cheap and poor farmer for the yield per acre, in attempting to fix cost of production per bushel.

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are built on the famous Can't-Sag plan, bolted at every joint. They always hang square and plumb. Outlast several ordinary wood, steel, iron, gas pipe or wire gates. Furnished in any size you want, sent complete ready to hang, or you can buy just the Gate Steels which include angle steels, hinges, bolts, etc., and make your own gates and save money.

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Farm Notes

Leaves and Leaf-mold as Fertilizer.

Would soil and leaves taken from the surface of ground, in oak timber, and spread four inches deep and plowed into light, worn-out soil, have any beneficial effect, or, to what extent would it compare with barnyard manure?

Barry Co.

J. J. B.

While there is no doubt that leaf-mold from the forest spread in liberal quantities upon thin light soil and plowed down would have a beneficial effect upon the soil, yet the results would not compare with the results obtained from a liberal application of stable manure. The reasons for this statement go too deeply into the chemistry of the soil to permit of a full explanation in a brief article.

Leaf-mold is quite different from humus, which is such an important factor of soil fertility. The decaying of vegetable matter is promoted by two different kinds of bacteria, one of which works in the presence of air, and the other which works where air is more or less perfectly excluded. It is the former kind, known as aerobic bacteria, which aid in the decomposition of leaves which fall upon the ground in forest areas. If this process is completed in the presence of air, little remains of the organic matter other than its mineral content. In other words, the decomposition of vegetable matter under these conditions is a process of slow burning which leaves little more residue than the ash which would result from burning the same matter with fire, the other constituents passing off in the form of gasses, water, etc. Where a liberal amount of this partially decomposed leaf-mold is plowed down in a light soil affording easy penetration of the air, the same process is continued, though somewhat more slowly. This is one of the principal reasons why an open soil is always more deficient in vegetable matter or humus than a more compact or impervious soil in which the processes of decay go on more slowly through the agency of bacteria which work in the absence of air.

Every observing farmer knows that the best way to preserve stable manure is in a shed or stable where it is packed thoroughly by stock trampling over it. The reason for this is that the rapid decomposition caused by the bacteria which work in the presence of air is arrested, and the slow decomposition caused by the bacteria which work in the absence of air, and which are less destructive and wasteful of the plant food and humus contained in the mass is encouraged. Likewise, if leaf-mold is plowed down on a light thin soil, something of the same results will be secured, but the results in this case will not be as favorable as where a clover or similar green manure crop is plowed down, for the reason that in the latter case the vegetable matter is more thoroughly mixed with the soil, particularly the large proportion of same contained in the root system of the plants of the green manure crop. For this reason, when the cost of improving a soil of this character is taken into consideration it will be found more economical to use a green manure crop, preferably a legume which will add considerable nitrogen to the soil than to depend upon a source of vegetable matter which is both difficult and expensive to gather and spread upon the soil.

It would be a better proposition to lime this soil if necessary to correct the condition of acidity which is common to most porous soils and sow it to sweet clover to be plowed down at once as a green manure crop. Stable manure contains a very considerable amount of available plant food, much more than does leaf-mold, although the latter is a source of vegetable matter which is carefully husbanded in many of the older agricultural countries

where it is first reduced in the compost heap by the slow process of decomposition, generally in combination with some stable manure or other vegetable matter to a condition which supplies available fertility and humus more quickly and readily than if at once plowed down as suggested in this inquiry.

Sawdust for Clay Soils.

I have been thinking about putting hardwood sawdust on some hard clay land. I have a mile to haul it. Would it pay me to do so? Has it any value as manure? How much would I apply per acre? Have taken your paper for a few years and like it very much.

Midland Co.

SUBSCRIBER.

The amount of actual plant food contained in hardwood sawdust is not very great, nor is it in an available condition for the use of growing plants until it has decayed through natural processes. Under ordinary conditions the fertilizing value of hardwood sawdust would be hardly worth considering when the cost of applying it is taken into consideration. It contains about half as much nitrogen as straw, and about the same amount of phosphoric acid and potash, or about 0.25 per cent of nitrogen, 0.3 per cent of phosphoric acid and 0.7 per cent of potash.

If this sawdust could be used as a stable absorbent before applying to the soil, its value would be considerably increased, not alone because of its efficiency as a stable absorbent, but as well because of the favorable influence of the bacteria contained in the stable manure on its rapid decomposition in the soil. The possible fertilizing value of sawdust is mentioned only because of the scarcity and exceedingly high price of both nitrogen and potash at the present time, and particularly of the latter. Should conditions obtain for a number of years which would continue to make it impossible to secure potash for fertilizing purposes, the fertilizing value of hardwood sawdust is a factor worthy of consideration.

Under normal prices for the three plant foods given consideration in commercial fertilizers, the plant food contained in a ton of hardwood sawdust would be worth \$1.50 to \$1.75. Under present conditions, if it were readily available it would be easily worth two or three times that amount, hence the desirability of using it as a stable absorbent where it may be available and sufficient straw is not at hand for this purpose, and the possible profit in applying it to the heavier soils for the future fertilizing effect which it might have, but which would not be realized for a considerable time.

On excessively hard clay spots, however, the sawdust would have a greater value for its beneficial mechanical effect than on account of its content of plant food, since it would tend to loosen the heavy soil mass and make it more easily penetrated by both water and air to the possible benefit of plants grown upon it. From this standpoint it would be well worth the experiment to haul the sawdust and spread it directly upon land of this type, but under other conditions it would be better economy to first use it in the stable as an absorbent and haul it to the field with the manure.

Planting Beans in Hills vs. Drills.

As I am a reader of the Michigan Farmer I would like to ask you about planting beans in hills, how far to plant them apart and how many in a hill? I have heard one man say he plants 12 in a hill, but is it not too many?

Kent Co.

H. O.

Formerly beans were grown almost entirely in check rows, being planted twenty-eight inches apart each way, and from six to eight beans being planted in a hill, although some growers planted as many as ten or twelve in a hill. The usual rate of planting was from twelve to sixteen quarts per acre.

In recent years, however, the majority of the beans grown in Michigan

have been planted in drills from twenty-eight to thirty-six inches apart. This method of planting has been found quite satisfactory and more economical of labor where the seed bed has been properly fitted before planting, and where the earliest possible cultivation is given after the beans come up, as should always be the case.

Quite recently, however, some have advanced the theory that anthracnose and other fungous diseases of beans are more prevalent where beans are planted thickly in drills than where planted more thinly in hills or check rows. This theory is based on the idea that where a smaller amount of seed is used, say not to exceed one-half bushel per acre, there is greater opportunity for the sunlight to penetrate all the foliage, having the effect of keeping the bacterial growth in check. Whether or not this theory may be sound is a matter of opinion, but it is passed on to enable readers to judge by their own observation.

In the writer's opinion whatever benefits may be derived from planting in hills other than the possible advantage of being able to cultivate the crop both ways can be secured by drilling more thinly in the row. It is the consensus of opinion among many good growers that one-half bushel per acre is sufficient seed, and preferable to a heavier seeding, although some growers continue to plant as much as three pecks of seed per acre.

WINTER STORAGE OF FARM MACHINERY.

Machinery means money to the farmer. Unless this machinery is cared for it will represent loss rather than a profit. Buildings may be built during the dull season to shelter all of the machinery with a place for each machine used on the farm.

When one crop is harvested the machine used should be tagged and parts needing repair or replacing should be labeled. It may take a little extra time just then, but will save hours in hunting and going over the machine and perhaps forgetting just how the machine did work at the time it was last used. The labeled parts should be ordered and when the stormy days come you will have a sheltered place and parts ready to make the necessary repairs. "A stitch in time saves nine," and you are ready long beforehand. Your neighbor is perhaps waiting for supplies in the spring when the rush is on and time is valuable. It is then that repairs are made hastily for the sun is out and you must be in the field. Poorly repaired machinery means a loss many times of a part of a crop.

Ever since the war has begun the apportionment of steel to farm implement manufacturers has become less and a crisis is fast approaching the machinery situation.

Many years ago when machinery was less used than it is today, it took a much longer period to harvest the same amount of crops on a given area of land. It has become impossible to reap the world's crops by hand. It would be about like trying to carry coal from the mines to the factories in baskets. It is stated, roughly speaking, that by the use of machinery the time needed to handle an acre of wheat has been reduced from sixty-one hours to three hours. Hay requires four hours instead of twenty-one; oats seven instead of sixty-six.

This shows how the American farmer has been able to farm larger farms because he has swung over from muscle to machinery. Farming is a great business, greater even today than in former years. If you are to farm efficiently you must have your farm well equipped. This is an investment to be sure, and must be considered in your farm account as an expense. The purchase of this machinery would be considered a sane investment but it is

your patriotic duty just as much to look after and care for it as it is to observe meatless and wheatless days. The government has asked you to eliminate all waste and to make your acres produce more and better crops and not allow any land to remain idle. Raw material is higher today and will demand more during the next few years. It is therefore just as important to conserve the machine that harvests the crop as it is to save the crop.

Machinery is labor-saving and with many of our farmers in the trenches work must be done in the most efficient way.

Equip your farm with good modern machinery.

Have a good weather-proof implement shed.

Have your machinery in good repair, ready for immediate use.

Make use of the good weather.

Rent or loan your machinery to your neighbor.

By so doing you will be performing your patriotic duty as well as the man in the trenches. Machinery means money, so do not forget that the weather man is severe on anything left in God's out of doors to care for itself.

FRANK SANDHAMMER,
Manistee County Ag. Agent.

SELECTING AND CURING SEED CORN PAYS.

It is doubtful as to whether any single day's work is as important to the farmer who grows corn, as a day put in selecting and storing his seed corn. In a single day's time a good man can easily select in the field and arrange on racks or hangers for drying, five bushels of seed corn, enough to plant twenty acres.

It is particularly important this season that all corn for seed be carefully selected in the field and properly cured and stored for next season's planting. By selecting in the field, it is possible to make a study of conditions under which the plant grew and to select properly matured ears from vigorous stalks growing under average conditions. A man can easily select with care, twelve to fifteen bushels a day, or more. It is equally important that corn so selected be properly dried. If coming from the field containing thirty-five to forty per cent of moisture, this must be dried down to twelve or fifteen per cent or the vitality of the corn will be lowered.

There are various effective methods for drying seed corn. It is important that no two ears touch, and free ventilation be secured in order to rapidly dry out the corn. Racks or stringers should be placed in a dry room with many windows, or in a well ventilated attic. Corn for seed should not be stored in damp places or where it will be exposed to cold.

The increase secured from properly handled seed corn over the ordinary method of handling, usually amounts to from seven to ten bushels, or it may mean a difference between success and failure. Seven bushels on twenty acres, or 140 bushels increase, should result from this day's work in field selecting and arranging for curing; or at one dollar per bushel, \$140 per day, a pretty good day's work on any farm.

THIS STATE GROWS 60% OF THE COUNTRY'S PEA-BEANS.

According to the latest report of the United States Bureau of Crop Estimates on beans there were 974,120 acres of pea-beans (also known as Boston small pea, navy, army, true bean, white navy, white field, and common bean), planted in the country this year. The same authority estimates that 581,490, or sixty per cent, of this acreage is now growing in the one state of Michigan. (See article, "Country's Bean Crop for 1917," in September 8 issue of the Michigan Farmer).

Commerce TRUCKS FOR BUSINESS

This Letter Tells The Story

It was written to us by a truck-farmer of Indiana:

"I had a place within eight miles of the city. By leaving at two o'clock in the morning with the team, I could reach the market and get a good stand. Last spring I sold the farm to a real estate company for twice what I paid for it—and bought this farm twenty-two miles from the city.

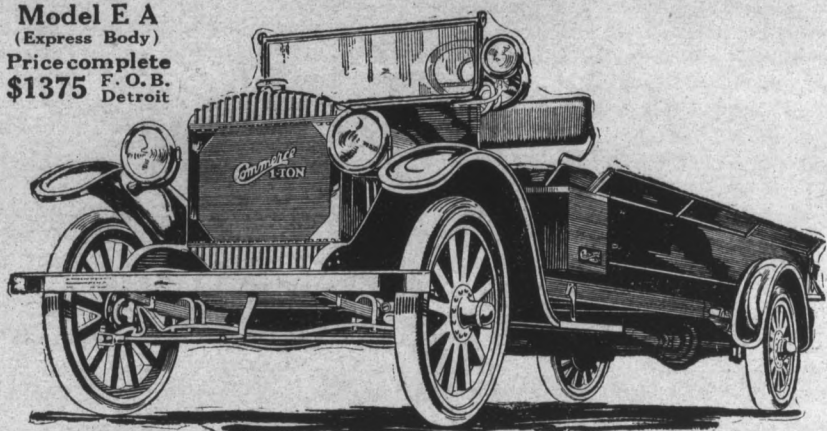
"I bought a one-ton Commerce Truck. I don't have to leave now until four o'clock. I can make two deliveries a day. I can use ten more acres that I used to sow to feed for the horses. Being farther from the city the soil is cheaper and better and I can work more of it. I don't have sick horses, lame horses and tired horses any more. The Commerce Truck has made this possible for me. It has made truck-farming a business proposition."

For seven years we have worked to produce this one-ton Commerce Truck. It has seven years of successful manufacture behind it. We believe that it is the best designed, the sturdiest, the most serviceable and the most economically operated one-ton truck on the market.

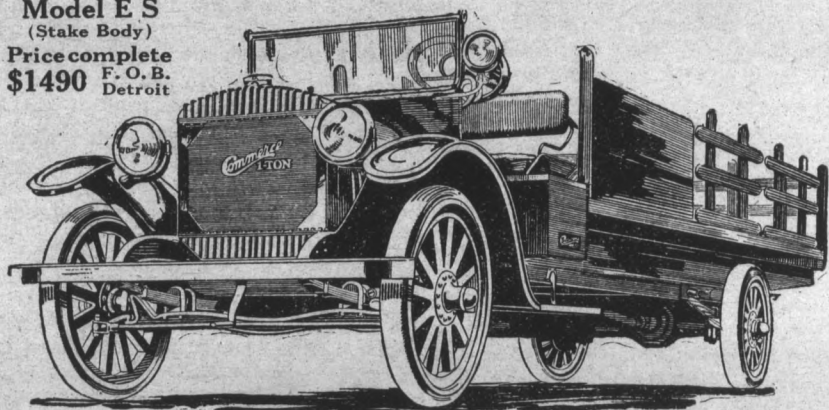
The Commerce Truck is built for business. It is sold for service. It is bought to save money and make money. When you buy a Commerce Truck, you receive it completely equipped—ready for any work, any road, any time. You don't have to buy additional equipment—at additional cost—to enable you to operate your Commerce Truck. There are no "extras."

Your Business is Our Business—If you need motor trucks, if you buy motor trucks, if you sell motor trucks because we build Commerce Trucks for Business.

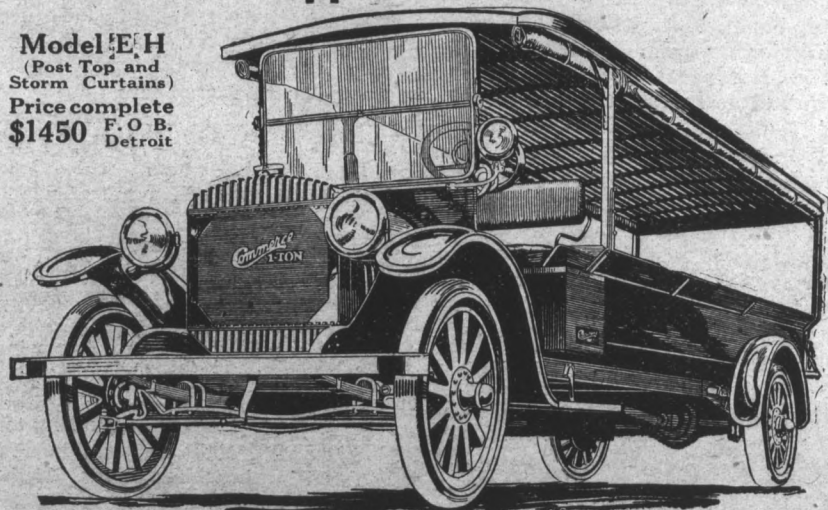
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(Express Body)
Price complete
\$1375 F. O. B.
Detroit



Model E S
(Stake Body)
Price complete
\$1490 F. O. B.
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Model E H
(Post Top and
Storm Curtains)
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COMMERCE MOTOR CAR COMPANY
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Note its large capacity—light running—large steel hopper—ball thrust bearing—self-aligning grinding plates.

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Your dealer sells it because he knows it will give you real service and satisfaction.

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KHAKI TWILLS**

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**'Uncle Sam's
Fighting Boys Wear
IRONCLAD KHAKI**

You men and women of his "home guard" should wear this patriotic economy cloth, too. It's fast sulphur dyed and wears like leather.

SHIRTS, PANTS AND OVERALLS made of the genuine Ironclad Khaki (the kind Uncle Sam uses) carry the yellow "army" label, like the above. LOOK for it in the garment before you buy.

Write today for free samples of Ironclad Khaki Cloth, and Miss Ironclad Khaki, the kid glove finish ladies' overall cloth.

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to have your FUR GARMENTS REPAIRED in a first-class manner before winter sets in.

We REPAIR and RELINE FUR COATS, FUR ROBES, furnish NEW CLOTH SHELLS for FUR LINED COATS, REPAIR the FUR, and make over LADIES' FUR SETS into newest styles.

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Our price list and samples are free.

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Made in all Styles and Sizes
All shears delivered free to your door.
Send for circular and prices.

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Save Your Vegetable Seed

MAKE sure of your vegetable seed for next year. Now is the time to act. The forehanded farmer or gardener probably has already given the matter consideration and the behindhanded grower—well, he gets left even under normal times, and war times are far from normal.

The country faces a shortage in vegetable seed, much of which has come formerly from France, Germany, Holland and Denmark. Today none comes from Germany, practically none from France, while in Denmark and Holland the vegetables are being raised for food instead of for seed. England is also hard pushed and the supply is considerably below normal. The little seed that can be obtained is much below the standard usually expected of European growers as most of the seed crops have been imperfectly cared for.

The effect of this foreign shortage has been further intensified by short seed crops at home. For instance, our own state in normal years grows the majority of the garden peas in the United States but the crop will be very short this year. California, another of the leading vegetable seed states reports only a fifty per cent crop of radish, spinach and onion seed.

Short Supply and Increased Demand.

The seed companies have endeavored to make ample provision to cover the shortage but the increased demand from various causes shows the wisdom of gardeners saving their own seed for the 1918 planting.

It therefore becomes a patriotic duty of the highest order to save your own vegetable seed wherever it is possible. Under normal conditions this often would not pay as the seed business requires much experience and keen judgment to keep the vegetable type right and to prevent mixing from other varieties. But given the proper care, home-grown seeds are better than seeds grown under a different climate or in a different soil. It is commonly known that sweet corn grown for a single generation in the north will come to maturity the following season quicker than the same corn grown the preceding season in Ohio or Iowa. The same is true of many other vegetables. Home-selected seed in Michigan is not only earlier but where it has become acclimated such seed will give better results than seed imported from other states. Seed grown in another neighborhood having a different environment even though only a few miles distant, is not equal to that selected at home for a particular soil, condition, or use.

Select Seed with Care.

Two things must, however, be remembered in the home selection of seed. First, the plant from which the seed is taken must be desirable and be typical for that particular variety or strain of vegetable. Second, it should not be cross pollinated with some other variety. Some vegetables have flowers that are seldom cross pollinated by bees or insects. Beans and peas are an example of such a class and seed from these vegetables will generally come true. Most of the other vegetables will cross if two varieties are planted in same garden or in adjoining gardens and in some cases even at considerable distance.

Select the beans and peas from plants of the best type for the particular variety. The pod-spot disease, anthracnose, as well as blight are carried over on spotted seed so it is very necessary to only save the seed from clean, bright pods. Store such plants in a dry, airy room until the seeds harden up and are easily shattered.

Seeds from the various root crops as beets, carrots, parsnips, salsify, turnips, and radishes, will not be difficult to obtain. The radish plant will bear a good crop of seed the first year, especially if the growth is checked by

transplanting the root about the time it has reached the edible stage. The other root crops are strictly biennials and produce their seed stalk the second year so the root must be wintered over. Parsnips and salsify are very hardy and may be left standing in the ground until they can be transplanted in the spring.

Care of the Late Crops.

The other root crops can be safely wintered if alternate freezing and thawing is prevented and the roots not piled up to heat. Outside pitting has given the best success and at the same time is the most economical. Light frost will not hurt the root crops standing in the field. The ground may even have become slightly frozen without injuring the root crop. If the root has become so frosted that the skin will slip, it must be consumed in the fall for successful storage is impossible as the bacteria flock through the weakened barriers and soft rot sets in. In the selection of the roots, discard those having poor crowns, overabundance of prongs, uneven coloring and a lack of uniformity to type. Top the roots closely but do not injure the crown. A layer of roots one deep are placed in the pit and dirt sifted in between them and half an inch deep over the layer. Each succeeding layer above the ground should be drawn in on all sides to form a mound that can be easily covered to keep out frost. Three or four inches of dirt over the mound will allow the heat to escape from the roots and as the cold weather comes on more dirt and finally manure is added to keep out all frost. Pits for carrots should be near the surface as they tend to heat and rot. Root crops should be removed from the pit and planted in the early part of May. A warm, deep soil, well cultivated and well fertilized will grow the best seed stalks. Set the roots about two feet apart and in rows three feet apart. The beet seed is harvested just before it shatters, usually in August, turnip seed when the pods turn yellow, and radish seed some time before the pods drop from the stems; carrots, parsnips and salsify do not ripen their seed heads at one time and a couple of cuttings will be necessary. If these last three root crops are bothered by the web worm, any arsenical spray will hold it in check. Green or black aphids sometimes appear on turnips but these intruders may be held in check with any nicotine spray.

Keeping Bulbs.

Many growers in Michigan save their own seed. The bulbs should be carefully selected for shape, size and color according to the variety. Store away carefully without bruising, in a dry, airy room around thirty-five to forty-five degrees temperature. Clay soil or strong sandy loam will produce seed with a higher germination than light soil. Bulbs are planted six inches apart in rows three feet apart. A furrow is opened up and bulbs planted in furrow. Later in the season the furrow is filled in and dirt drawn up to support the seed stalk. In August the seed balls are ready for harvest. Several cuttings of these yellow seed balls are necessary. The seed balls with a few inches of the stem attached are spread out on wire netting to dry and then beaten with a stick, the seed falling through.

The majority of the cabbage seed in the United States is grown on Long Island or Puget Sound, but some good crops have been obtained in Michigan. Cabbage seed may be produced in three ways. First, from the stump; second, from fully developed heads; third, from partially developed heads. The last two methods may give good results in the home garden. Pull up the entire plant, remove outer leaves and store in an airy place having a

uniform temperature of thirty-five to forty degrees. If outside pitting is necessary, open up a wide trench by plowing both ways. The main essentials of successful outside pitting is thorough drainage and prevention of alternate freezing and thawing. Where possible the trench should be in sandy soil and outside drainage provided by a small furrow around the pit. The plants are packed in the pit separately, three or four plants in width, roots down, covering roots and tops slightly with dirt covering heavier as the cold weather approaches. In April the plants are set out in furrows four feet apart for early and five feet apart for late varieties and about two feet between plants. The heads should be slit or leaves pulled apart to allow the seed stalk to push through, but care taken not to injure the bud. Seed stalk is cut when pods turn yellow as the seed shatters easily.

Production of Celery Seed.

Celery seed has been produced in this state in only small amounts as it is much inclined to blast if summer is at all dry and hot. The celery may be wintered in cellar, outside in rows or outside in trenches. If wintered in the row, dirt is brought up around the roots about four inches and as cold weather approaches straw one foot deep is put over row and held in place by long boards slanted and lapped to shed rain. If winter is severe, the boards can be covered with strawy manure on the outside. The celery tops will freeze and rot some but if the heart has not rotted a seed stalk will be sent up and ripen seed early in summer.

It is a common practice for gardeners to save their own tomato seed. Select the tomatoes from the vines having the largest per centage of good fruits. Squeeze the seeds and pulp into a wooden or galvanized pail and allow pulp to ferment in sun for a few days. Seed will then readily separate from its gelatinous coat and go to the bottom. Wash the seed clean, spread it out then to dry.

The home saving of squash, cucumber and melon seed is very simple. Sweet corn can be harvested and stored the same as field corn.

PRUNE TO MAKE ORCHARD PROFITABLE.

Farmers who wish to put their orchards in shape for profitable production should begin pruning, whenever the wood is not frozen, in mid-winter. Trees in heavy bearing condition will make stronger growth if pruning is done during the late winter and early spring. Pruning during June and July will slightly check the rank growth on trees that are making too much wood growth and tend to throw them into bearing for the following year.

Remove all dead or badly diseased limbs. Clean out all canker wounds on the trunk and main limbs with a tree scraper. Cut well into the rim of healthy wood on all sides of the wound to get rid of the disease. Then paint the wound with common white lead and oil paint, to each quart of which has been added one teaspoonful of bichloride of mercury dissolved in turpentine (about one ounce). Paint all canker and pruning wounds as soon as made.

Cut back the strong, upward growing central limbs to outward growing side branches. This induces the tree to spread laterally instead of growing too high. It admits light through the center to fruiting branches below. If the limbs cross each other or crowd badly, thin them out enough to admit filtered sunlight to all parts of the tree.

In pruning cut limbs close, so as to leave no stub or knot. A protruding knot will not heal. A wound cut close will allow the growing layer to close over the wound.

The Great Dairy Show

LAST spring Ohio was called upon to prepare for entertaining the National Dairy Show. She answered by appropriating \$200,000 for the erection of a great coliseum on the Ohio State Fair grounds for the housing of the great dairy exhibition. Largely as the result of the ideal facilities provided the dairymen were able to stage a show far superior to any ever attempted in this country. Exhibitors and spectators were unanimous in calling the show the greatest that it had ever been their privilege to see.

Of the items that characterized the average dairy equipment on the farms of the country a half century ago, only the dairy cow remains, and she has been much changed to meet the demands of the present decade. The wonderful collection of modern equipment which has been perfected to aid the cow in her efforts to surpass her predecessors in the production of food that is indispensable to the human race, was here displayed in its every detail. This equipment ranged from the numerous labor-saving devices in a thoroughly equipped barn to the massive machinery necessary to prepare dairy products for the consumer.

In viewing these devices and machinery the visitor was impressed with the magnitude of the business that depends upon the continuation of the dairy industry. Commercial feeds, stanchions, partitions, mangers, water fountains, feed and litter carriers, milking machines, tinware, glassware, cork and concrete floors, salt, cleansing compounds and the thousand and one kinds of machinery necessary to prepare and convey milk and its derivatives to the consumer, all are part of the great dairy business and all exist largely because of the important place milk occupies in the human diet.

But the 1917 National Dairy Show did not confine its exhibits to those items having direct relation to the dairy business, for there one found fertilizers, lime spreaders, seed corn, improved feeds, tractors, ensilage cutters and an untold number of labor-saving devices to win his attention and admiration.

Interspersed with these thousands of commercial exhibits were many educational displays. The Ohio State University demonstrated with charts the economy in producing and caring for corn in such manner as to increase the proportion of the higher grades. Over this display were the suggestive words, "Grow More Corn and Less Water."

There was a fine rural engineering exhibit. Models of a sunlight hog house, plank-truss barn, plank-frame implement shed, balloon-frame barn with the necessary blueprints were open for the inspection and study of patrons. A hydraulic ram in operation demonstrated the great economy of such a system of water supply for the farm home where a water head is available. An inexpensive hot water plant won the envy of many a housewife.

The value of sour milk in the feeding of poultry was brought out in an educational demonstration of crate feeding where the following ration was used: Corn meal, 40 lbs.; wheat middlings, 40 lbs.; finely ground meat scrap, 5 lbs.; enough sour milk or buttermilk to make a thin batter. Dressed samples of fowls fed with this ration and in the ordinary manner were shown to impress the advantage of the use of the sour milk, while over the booth was the claim that "a milk-fed fowl is like a corn-fed steer—tender and juicy," and also the sign, "One of the most valuable foods for the young chicks is sour milk. It will do more to prevent white diarrhea than any amount of drugs."

There was also a striking demonstration of the value of milk in pig

feeding. A pair was shown fed by Donavin Carson, of Union county, on corn, salvage wheat, middlings and tankage for seventy-five days. The average daily gain was 1.37 pounds, at a cost of ten cents per pound. A pair fed by Newman Roseberry, Madison county, for ninety-five days, on corn, oats, middlings, oil meal and skim-milk, gained 1.7 pounds per day at a cost of 7.62 cents per pound. In this instance the difference in favor of the milk-fed pigs was 0.33 pounds per day of gain and 2.38 cents cost per pound.

An exhibit of interest in demonstrating the great value of butter-fat in infant feeding was one illustrating the disastrous effect of feeding young rodents skim-milk, as compared with the excellent growth made by those fed with a normal per cent of butter-fat. The same results are obtained in baby feeding, and indicate that the growth-making properties of the butter-fat must not be denied the children.

Pennsylvania State College had a small model of the famous respiration calorimeter, with which Dr. Armsby conducted experiments and worked out nutrition facts that have attracted world-wide attention. There was also a very valuable collection of charts on different phases of dairying. Pennsylvania has thirty-seven cow-testing associations.

The Ohio Experiment Station had a compact booth with a collection of dairy facts sufficient to furnish a first-class course in dairy breeding. Some years ago the station herd was found to be badly diseased, and all reactors were slaughtered. The present herd is the progeny of eight cows that remained after the cleanup. They have been tested annually and no females are bought or introduced into the herd. All males are given a thorough test before introduced. Grading up was demonstrated by a series of pictures. One red roan, for instance, with a record of 6,908 pounds of milk and 287 pounds of butter-fat, was bred to a Holstein-Friesian bull. Her heifer calf gave 8,164 pounds of milk and 306 pounds of butter-fat. This heifer was a blue or dark roan color. Her offspring, by a Holstein-Friesian bull, was a clear black and white and gave 10,683 pounds of milk and 390 pounds of butter-fat. There were several families recorded which showed the same results of breeding up through the use of thoroughbred sires.

A comparison of clover and alfalfa hay was shown. The feeding value of the two products were about equal, but alfalfa has a better effect on the animal by causing a more efficient consumption of other feeds. It also furnishes a larger tonnage per acre.

A study of present feed costs as compared with normal costs, showed that in the case of a Jersey, giving 6,884 pounds of milk and 386 pounds of fat, the profit, with average feed costs and with milk at \$2 per cwt. was \$40.70; on the basis of twenty-seven cents for butter it was \$21.52. At present feed prices and with milk at \$3 per cwt. the profit was \$25.74; while on the basis of forty cents for butter-fat it was but \$1.76.

The Illinois exhibit contained many interesting and instructive views, also some good practical dairymen's outfits. The veterinary set consisted of trocar and canula, milk fever outfit, irrigator, slippers, syringe, epsom salts, alum water, tincture of iodine, powdered ginger, gum camphor and saltpeter. There were also outfits for keeping dairy records, tags, punches, record sheets, etc.

One of the most interesting exhibits on the grounds was in the central portion of the cattle barn. Peter Small, of Geauga county, one of the best breeders in the central west, had a line of his best cows. In one stall there was the hide of a bull, draped



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Easiest, safest to run, works corn in any condition. 4 sizes for 4 h. p. engines and up. **HUSKER BOOK FREE.** Appleton Mfg. Co., 520 Fargo St., Batavia, Ill.



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Quickest to heat; strongest draft; adjustable grates; ashes removed without disturbing fire; keeps fire 24 hrs.; pays for itself in 2 months with 4 **Absolutely Safe** cows; **Self-Sinking**; can be used in Wood, Steel or Concrete Tanks of any size. Most reliable, practical, efficient and durable Tank Heater manufactured.

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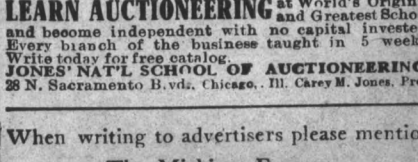


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FREE A folder on Values of Feeds and Manures.

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over a pole, and on it was the significant sign.

"GONE BUT NOT FORGOTTEN."

This bull, Aagie 3d Wayne Paul De-Kol, was sold for bologna, when a four-year-old. That was before any of his get had been tested. Four of his tested daughters average 25,210 pounds of milk, and 973.3 pounds of butter-fat in a year. The lesson in this case, as in many others where a bull has been slaughtered before his worth as a sire was known, is to keep what seems to be a good bull until some actual test of his female get may be made. One cow in this exhibit has a record of 26,204.1 pounds of milk and 1,030.2 pounds of fat in a year. Another gave 20,876.3 pounds of milk and 802.5 pounds of fat in ten months and dropped two living calves within the same year.

GREAT MILK MEETING AT CHAMBER OF COMMERCE, DETROIT.

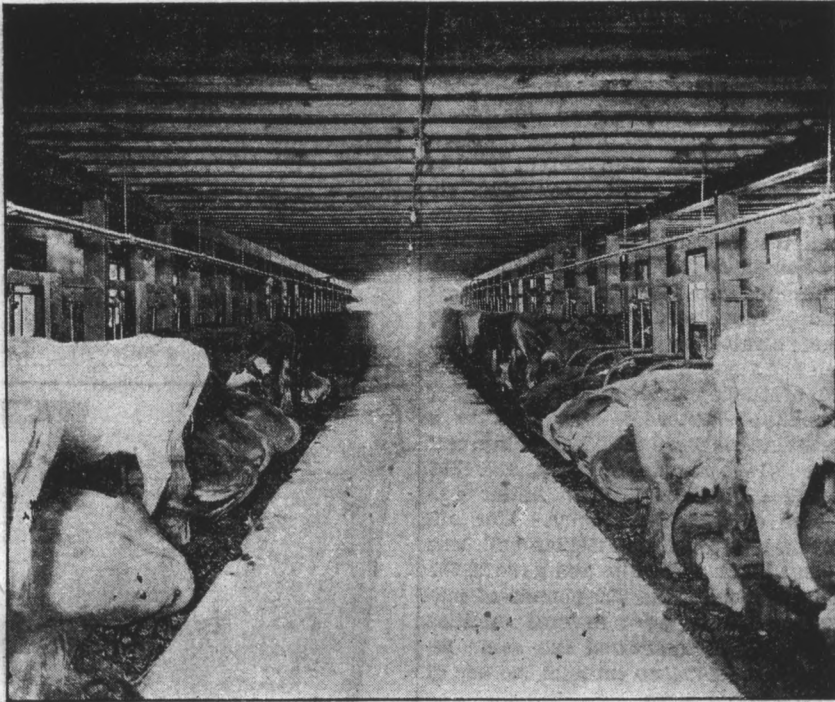
November 5, at 10:30 A. M.

Attention, Milk Producers of the Detroit Area. A great Milk Meeting ahead of you.

The greatest contest yet lies just ahead of you. Never was there so much need of making our organization solid as now. We must close up the ranks. Thousands of dollars of your money and thousands of hours of your time depend upon the action you take now. It seems necessary to provide

them this much money, advertising for other business interests. We owe a debt of gratitude to these men. Let us now do as other business men do and advertise our own business. If we would just get a different vision of our opportunity, we could multiply the consumption of dairy products. The automobile manufacturers put five per cent of the total sales of their business into the advertising. When one of their cars sell for one thousand dollars, fifty dollars of this is taken to set before the world the knowledge of the value of the machines. This is put into the advertising fund to sell a thing that most people do not need.

The Detroit milk distributors have just made a fund of \$13,000 to advertise milk in Detroit; to sell your product. What are you putting in to acquaint people with a knowledge of the value of this most vital food product? We should have a more energetic campaign than ever to begin now. We should get into the press of the city with our advertising. Every dollar used in advertising will bring back a hundred-fold in increased price and demand. We believe that the milk producers should pay for the support of their state organization at least one-half cent per hundred pounds of the milk sold. This is an insignificant sum. At the present price of milk to the condensaries this would be one-half cent on every three dollars, or one-six-



The Installation of Permanent Lights in the Dairy Barn Resulted in the Saving of Much Time in Caring for the Cows.

cheese factories to care for the milk now going into Detroit, provided there cannot be a satisfactory settlement of the price question at the end of this year. There should be twenty of these factories situated in strategic points so that each one may be easily available. These factories can be run as long as it seems necessary to divert the milk from the city. One week would solve the problem without the waste of any milk. We must remember that we cannot waste food products now. Now let's get into the game in earnest. We have only been playing at it so far.

Some men have thought that when they put fifty cents into a cooperative proposition that they were really doing something to count in the accomplishment of a great objective. When you only have a fifty-cent vision of a billion dollar business your vision is mightily limited. Why can we not get the ear of the city press that goes to the consuming public? Simply because the advertising patronage to these papers is entirely with the buyers of the dairy product. The agricultural press of the state have given thousands of dollars worth of space to the Michigan Milk Producers. They have given this space to you that would have brought

hundredth of your milk price. For every one dollar that you put into this, your campaign, the automobile manufacturers would put in thirty dollars. They get rich in their business, while the milk production business, on a commercial basis, is and has always been a failure. You can change it if you will and you will be benefited all the time from start to finish. It is up to you. What will you do? Don't condemn the distributors or the consumers for what you can change yourselves.

It is estimated by men of broad financial vision that the work and influence of the Michigan Milk Producers' Association has increased the income of the milk producers of Michigan more than two million dollars a year. Just recently we found a place where they had no organization; where they knew nothing about the effort that was being made to help them; where they were selling milk for \$1.25 per hundred pounds.

You have done well for one year, now let's get into the game for a more determined effort along the line. Your association stands to assist in all possible ways. Let's still wave before the world our banner with our slogan:

Education. Legislation. Cooperation.

Our policy: Constructive not Destructive.

Our Aim: A price for our product that equals the cost of production.

We expect some of the best thinkers of Michigan at the Detroit Area meeting. At Chamber of Commerce, city of Detroit, November 5. Be sure to be there.

Command us for your assistance.

R. C. REED,

Field Secretary, Howell, Mich.

DOES THE SILO ROOF PAY?

Most farmers look upon the silo roof as a piece of unnecessary expense—all right from the standpoint of appearance, but a luxury pure and simple. Of late years some data has been collected bearing on this point that seems to indicate a more economic reason for the silo roof.

Some years ago the writer signed a contract with a condensary company in common with other milk producers in the vicinity of Tillsonburg, Ontario. Among the other ironclad regulations a new one was observed to have crept in. The company, who was not over-friendly to the feeding of silage, were determined that if the farmers insisted on feeding canned cornstalks, they would see that the quality was kept up to the maximum. Consequently when the new contract with the farmers for fall and winter milk was ready for signing they had inserted the new requirements that all silos of patrons must be roofed.

At first this was scoffed at as a sort of Kaiserism. Soon, however, the more thoughtful farmers began to reason the thing out for themselves, experiment and collect data on the point. Frozen silage is well known to be more or less inferior in feeding value. The roof very materially decreases this loss from freezing, while in summer it acts as a protection against the extreme heat of the sun, which has a tendency to cause considerable loss between feedings. Not less important is the fact that it has a bracing effect against undue wind strain and vibration. The great disadvantage of the stave silo as usually constructed is its liability to blow down. The best builders say that properly constructed so they will not blow in, there is no danger of them blowing down. As compared with unroofed silos, but few with roofs, are seriously damaged by winds. This alone is sufficient reason for the additional expense. Add to this the fact that the silo is protected from the decaying effect of weather, as well as its contents, and a roof investment takes on a different aspect to the average farmer.

Ontario.

J. H. MCKENNEY.

MILK PRICES MUST BE ADVANCED.

In order to secure reliable data upon the milk production industry in Illinois, Food Administrator Hoover appointed Prof. F. A. Pearson of the University of Illinois, to make a survey of the conditions governing milk prices in that state. Prof. Pearson has completed this work and made his report. He states that the wholesale price established by the Milk Producers' Association is insufficient to return to the farmers any profits for the remainder of the year. The price for October milk which is \$3.45 per cwt., is one cent lower than it should be to cover the cost of production. He states that the price for November and December should be \$3.71 and \$3.77 respectively in order to give the producer enough to make his efforts in the dairy business worth as much as similar efforts along other lines of agricultural endeavor.

Vast quantities of German owned supplies that were purchased before the war and secretly stored in this country, have been ordered seized by the United States government.

CORN OR MANGELS FOR SILAGE.

The comparative value of corn and mangels will be considered by farmers this year as never before. The shortage of corn and the high cost of feed makes it essential that the farmer utilize every possible food crop, and conserve all valuable roughage. Fortunately, studies have been made at the various experiment stations, not only on the relative yields and the cost of producing each, but also concerning the relative feeding value of the dry matter in corn silage, mangels, and grain.

At the New York Experiment Station it was found that the relative feeding value of these materials were as follows:

One pound of dry matter in mangels is a little more than equal to one pound of dry matter in silage; one pound of dry matter in mangels is equal to one pound of dry matter in grain, and mangels may replace one-half the ordinary grain ration with mixed hay and silage.

From these facts it would seem that the dry matter in mangels is fully equal to that in good silage. However, on the point of yield and economy of production of dry matter, there is some difference between the two crops. Under favorable conditions, mangels may give a tremendous yield, but the labor item with this crop is also large. Prof. Minns tabulated the average cost of dry matter in price of the north corn (ten tons), and sugar mangels (twenty tons), for four consecutive years. The cost of 100 pounds of dry matter in the corn was seventy-one cents, in the mangels \$1.54. Labor is higher now than then, making the relative costs about the same in proportion. But the cost of a unit of dry matter was fully twice as much in mangels as in corn. It may still be good economy in spite of these facts to use a small area of mangels for special purposes, but, even assuming that the dry matter in mangels has a higher feeding value than that in corn, there is yet a wide margin in favor of corn as the main source of succulence.

In the beet growing section of New York, farmers are arranging this season to conserve every top and mangel possible, and this will aid in making their dairy cows more profitable with a crop formerly permitted to go to waste.

New York. E. W. GAGE.

WHY MILK TESTS VARY.

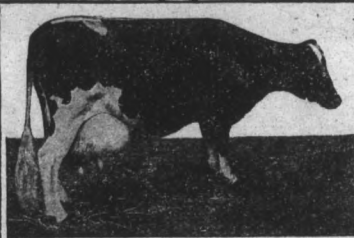
It is often observed that milk is poorer in fat in summer and becomes richer again in the fall, and the farmers have generally assumed this to be due to the watery condition of grass as compared with the dry feed received during the winter. Tests have shown that the cause of this is not grass feeding but the temperature. For some reason there is a tendency for the milk to be richer in fat during cold weather and to become poorer when the weather becomes very warm, regardless of the feed consumed.

A second factor of importance as influencing the richness of milk is the fatness of the cow at the time of freshening. A cow high in flesh at calving time gives very much richer milk for some time than would be the case were she thin.

This knowledge is now made use of by every breeder of dairy cattle who desires to make the largest possible record for milk and butter-fat production. Another interesting discovery is that when a cow is underfed that temporarily she gives richer milk rather than thinner, as might be expected. This is of great importance in connection with making tests of cows and a failure to understand this effect has resulted in wrong conclusions from many experiments conducted with cows in the past.



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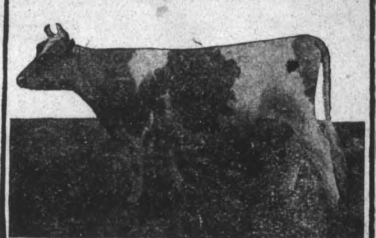
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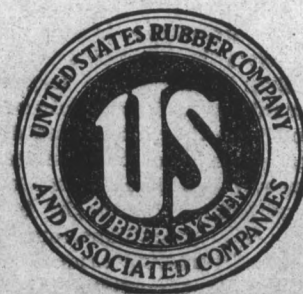
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Magazine Section

LITERATURE
POETRY
HISTORY and
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MICHIGAN FARMER
AND LIVE STOCK
PUBLISHED WEEKLY
JOURNAL
ESTABLISHED 1843

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere.

HOW many times I have heard soldiers on leave from the front say, "I would rather have our bread at the front than your bread here in Paris." The same thing was true of coffee. Soldiers would say, "What do you call this stuff? We get real coffee at the front."

At the rear the civilians drank a compound from chicory, for the coffee supply was short, while the real coffee was reserved for the army. In like manner, the soldiers get a purer wheat flour than do the civilians. The wheat supply being so much curtailed, two measures have been necessary to try to increase the amount of flour.

A law has been passed requiring the

French Conserve Food Supply

ARTICLE II.

By FRED B. PITNEY

mixture of thirty per cent of other grains with wheat in making flour, while another law raised the percentage of extraction permitted in the manufacture of flour. Before the war this percentage was seventy, it has been raised successively to seventy-four, seventy-seven, eighty and eighty-five. Seventy-seven is the extreme limit of nutritive extraction. After that the flour becomes permeated with particles indigestible for human beings.

The result of mixing grains and high extraction has been a flour that is often not only unpalatable but indigestible and it has caused not a little sickness, particularly gastric troubles among the children. Adults frequently throw away the soft inside of the bread and eat only the hard baked crust. Very often I have found this "war bread" an unpleasant dark brown in color with a soggy, glutinous inside. It is no one's fault. It is the best year, owing to special reasons, the pro-

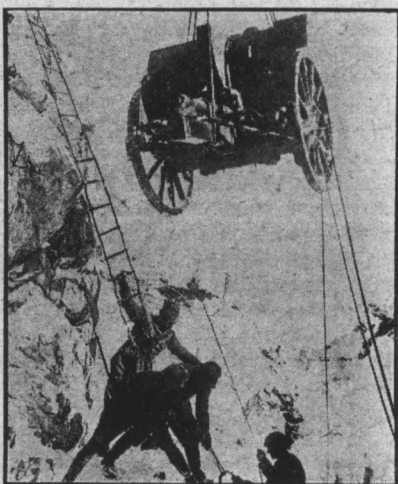
that can be done under the circumstances.

Shortage of All Cereals in France.

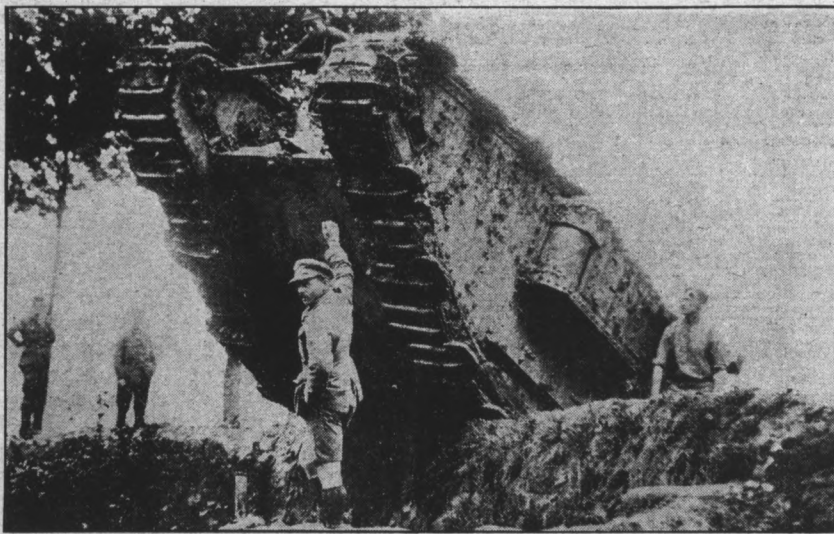
Another problem enters with the authorization to mix other grains with wheat in making flour. It is the shortage of the other grains. For it is not only wheat that is short in France but all cereals. We can have recourse once more to the official figures.

The annual consumption of barley in France before the war equalled approximately 1,250,000 tons, of which about fifteen per cent was imported. The production has fallen off to such an extent that nearly one-third of the barley had to be imported last year. This

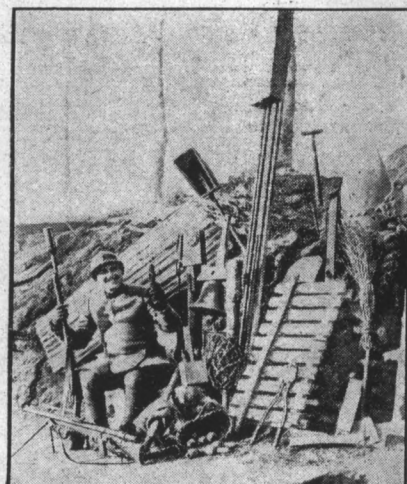
WORLD EVENTS IN PICTURES



Italians Meet Great Obstacles in Getting Big Guns on Mountain Heights to Sweep Austrians from the Plains Below.



British Tank Ready to "Go Over the Top" During Battle of Menin Road.



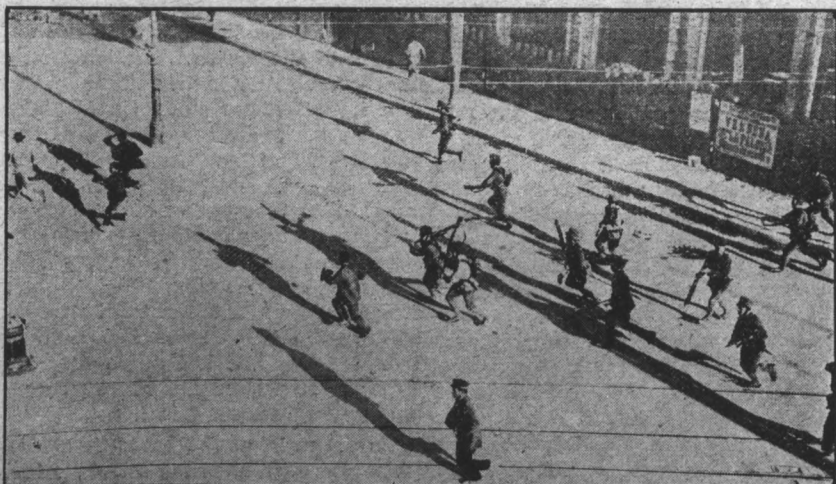
A French Soldier's Equipment—Rifle, Grenade-throwing Gun, Pistol, Powder, Grenades, Bag of Sand, Pick-axe, Alarm-bell, Rocket, Periscope, Etc.



French Mothers and Children to be Cared for by the Red Cross.



Burmese Troops on Western Front Hold Council of War on the Rats.



Remarkable Photo Shows the Breaking up of a Revolutionary Riot in Madrid.



What One German Bomb Did to a London Residence in a Recent Air Raid.

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duction will be slightly higher, but there will still be a deficit far above the normal. Furthermore, barley must be used very largely to supplement and replace wheat.

With rye the normal consumption was about the same as for barley, with imports of about eight per cent of the requirements. In 1915 the production was about 400,000 tons under the normal consumption and in 1916 it was about 350,000 tons under the consumption, while in both of those years there were practically no imports. Thus there was less rye than was needed and rye could only help out wheat by reducing still further the amount given to its normal uses.

The annual consumption of corn averaged 1,150,000 tons, about one-half being imported. The proportion of imports in 1916 had risen to two-thirds.

The annual consumption of oats before the war was 5,500,000 tons, of which 500,000 tons were imported. In 1916 the imports rose to over 1,000,000 tons and the stock was still short 500,000 tons.

When one travels over France, one speedily learns the reason for the shortage in the grain crops. It is because there is not the labor to do the farm work. Cultivation has to be left to the old men, the women and the children. All others have been taken for the armies and the defense of the country.

Every thought of France for three long years of a bloody and sacrificial war has been given to "les braves" at the front. Little has remained for the civilians at the rear, who have borne their trials in stoic calm for the sake of the soldiers in the trenches.

"Contraband" RANDALL PARRISH

Leayord and I were the last, and we left the dinghy swamped behind us, a dangling and crushed against the steel side of the schooner, upheld only by the strength of the rope. It was all the work of a feverish minute, in which thought was impossible because of the stress of action. But now, as I clung breathless to those lower mizzen ratlines, the seven of us jammed upon the little platform, the green surge of water below slushing against the wreck we had just left, the strange silence of this vessel which we had boarded struck me with full force.

"This is a rum go, sir," ventured Leayord soberly. "Ain't she got no crew?"

"I don't know what to make of it," I confessed, "but we'll soon find out. Help the lady, Leayord. Olson, come with me."

We footed the ropes, and swung up to the rail, clinging there long enough to gain swift view of the deck beyond. It was as clean as a millionaire's yacht, and had the appearance of one, with brasswork glistening, and paint fresh and bright. Every rope seemed coiled in place, the sail gaskets firmly tied, the planks spotless, the canvas as white as though just out of the sail-loft. My eyes surveyed the whole fore and aft—the low fore-castle, the cook's galley, with door standing wide open, revealing a fireless stove, the boats in chocks, not one missing, the after cabin on the deck level, its companion door ajar, the wheel astern, outlined against the sky, swinging lightly to a lashing of rope—and nowhere a human being. I could scarcely believe the evidence of my own eyes.

"Great scott, Olson; there's not a sailor on deck," I gasped.

"No, sir; it beats me; I've been at sea a long time, sir, but I never see nothin' like this—they ain't left, fer the boats are all there, an' the wheel is lashed. She's just a sailin' herself."

"There's no sign of any trouble on board. Why, those decks are scrubbed like a Dutchwoman's floor. Hurry up, Leayord; the schooner seems deserted. Come on, we shall have to clear this mystery up."

We sprang down on the deck, and the others came tumbling over the rail after us, each face expressive of mystification. Vera touched my sleeve, her eyes searching mine.

"What can have happened?"

"I do not in the least know," I answered. "The mystery is too deep to guess at. There has been no storm, no fire, no evidence of desertion, every boat seems to be in its proper place. The only thing I can think of as possible is drink. The whole crew may be drunk, but that seems like a dream. However, we can't stand here doing nothing. White, you are not of much use with that broken arm, so remain

with Miss Carrington. Keep your eyes open. Leayord, you and I will have a look into that cabin; the rest of you take the fore-castle. Be careful, but don't miss anything—scatter now."

I watched them go forward, their reluctance apparent enough. The superstition of the sea was in their blood, and every man among them was seeing ghosts; had it been dark not even a threat of death would have driven them into that grim hole. Leayord grinned, as I turned and faced him.

"They are fair scared, sir," he said, "they think they're aboard a spook ship."

"And how about you?"

"Me! oh, I was brought up ashore, sir; but since then I've seen so many queer things afloat, that I've come to take them as all in the day's work. This here is a bit strange, but it'll all straighten out, I reckon."

"You have a theory, then?"

"Well, maybe not that exactly," he admitted gravely. "But I expect we'll find every mother's son on board drunk."

"Well, we'll know in five minutes; let's try our luck aft."

I slid back the companion door, and entered slightly in advance. The cabin floor was on a level with the main deck, and its glass front flooded the interior with light. A glance revealed everything, and I stood motionless, my breath caught in my throat, my hand still gripping the edge of the door. I was aware that Leayord peered in across my shoulder, and heard his startled lips utter one muffled exclamation. It was a low-ceiled apartment, painted white, with ports along the sides, the only staterooms being aft. A bright-hued rug covered the floor, and there were leather divans under the ports. The table in the center was fully set for a meal, covered with a white cloth, and glistening bravely with china and glass. There was food in abundance, partially eaten, and wine glasses half-filled. I saw all of these details; I recalled them afterwards, yet in that first instant of horror, the impression left upon me was merely of those silent, motionless figures sitting upright in their chairs. And it was a gruesome sight! They actually seemed alive; as though they must turn and speak, challenging our presence—and yet I knew them to be dead! A great monster of a man faced me, his white, ghastly face appearing above a shaggy, gray beard, his sightless open eyes, staring full into mine. A wine glass had fallen from his open fingers, and lay broken on the deck. Indeed, every one had apparently died as by a stroke, retaining exactly the posture last assumed in life.

To the right of the broad-shouldered giant was a thin, young fellow, scarce-

(Continued on page 412).

Bumper the White Rabbit

By GEORGE ETHELBERT WALSH

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Where Bumper Came From

Get acquainted with Bumper. Of all the rabbits that ever lived none have had a more exciting time than this remarkable Bumper. His rise to a position of high authority will be told in a series of sixteen separate stories. Next week you will learn "Why Bumper Was Left at Home." These stories will furnish excellent supplementary reading for the public schools. Bring your teacher's attention to them.

THERE was once an old woman who had so many rabbits that she hardly knew what to do. They ate her out of house and home, and kept the cupboard so bare she often had to go to bed hungry. But none of the rabbits suffered this way. They all had their supper, and their breakfast, too, even if there wasn't a crust left in the old woman's cupboard.

There were big rabbits and little rabbits; lean ones and fat ones; comical little youngsters who played pranks upon their elders, and staid, serious old ones who never laughed or smiled the livelong day; boy rabbits and girl rabbits, mother rabbits and father rabbits, and goodness knows how many aunts, uncles, nephews, nieces, cousins, second cousins and distant relatives-in-law! They all lived under one big roof in the backyard of the good old woman who kept them, and they had such jolly times together that it seemed a shame to separate them.

But once every day the old woman chose several of her pets, and carried them away in a basket to a certain street corner of the city where she offered them for sale. She was dreadfully poor, and often when she returned home at night, counting her money, she would murmur: "It's a cabbage for them or a loaf of bread for myself. I can't get both."

She didn't always get the loaf of bread, but the rabbits always had their cabbage. They were all pink-eyed, white rabbits, and people were willing to pay good prices for them. But the whitest and pinkest-eyed of them all was Bumper, a tiny rabbit when he was born, and not very big when the old woman took him away on his first trip to the street corner. Bumper had never seen so many people before, and he was a little shy and frightened at first; but Jimsy and Wheedles, his brothers, laughed at his fears, and told him not to mind.

After that he plucked up courage, and when a little girl suddenly ran out of the crowd and picked him up in her arms, he tried not to be afraid. "Oh, you sweet little thing!" the girl exclaimed, pinching his ears softly. "Where did you come from, and where did you get those pink eyes and those long, fluffy ears?"

Then the girl kissed Bumper and rubbed his nose against her soft, fresh young cheek; but when the old lady approached, all smiles and said, "Want him, dear?" she put him down in the basket again.

"Want him? Of course, I want him!" she replied a little scornfully. "But I can't buy him today. I spent all my birthday money on candies and cakes. Take him now before I steal him and run away."

She was a pretty girl, with red hair, a dimple in her chin, and one big freckle on the end of her nose; but her eyes were blue, and they made Bumper think of the sky which he could see through a hole in the roof of his house. I suppose it was because he had pink eyes that he thought blue was so becoming to little girls.

That night when he got home, Bumper was bursting with excitement. The

day's experience was enough to cause this, but the words of the little girl who had spent all of her birthday money for candies and cakes were fresh in his mind. The first thing he did when he got in his box was to pester his mother with so many questions that she had hard work answering them.

"A little girl asked me where I came from, mother, and I couldn't answer her. Where did I come from?"

Why, dear, from a snowball, of course. How else could you be so white?"

"And have I pink eyes?" That was the little girl's second question.

"What color did you think they were?" asked Bumper's mother, smiling. "Look at the eyes of your brothers and sisters."

Bumper looked in Jimsy's and Wheedles' eyes, and saw they were pink, but he was still doubtful. "But mine," he added, "are you sure they're pink? They might be green or yellow—"

"Mother rabbit laughed and hopped over to a basin of water which the good old woman kept filled for her pets. "Look in that," she said, "and then tell me what you see."

Trembling with excitement, Bumper plunged both front paws in the basin, and the water rippled in little waves so that he could see nothing. He was terribly disappointed at first, for the water was a little dirty, and he was afraid the black specks floating in it might be the reflection of his eyes. Then the water cleared as the dirt settled at the bottom, and straight up from the depths there glowed two tiny pink spots. Bumper watched them in silence until his mother asked: "What do you see, dear?"

"Two pink stars!" he murmured.

Mother rabbit, like all fond mothers, smiled and leaned over to kiss the wet nose of her little one. Jimsy and Wheedles and all the other rabbits were anxious to see the two pink stars in the water, and they crowded around the basin to get a look. They held their breath in amazement, for wonder of wonders! Instead of two, there were a dozen tiny pink stars! They twinkled and flashed, and when they bobbed their heads up the stars faded away or disappeared entirely.

Mother rabbit, who was very fond of her little ones, smiled proudly, and said:

"All my children have pink eyes!"

"But don't all rabbits have pink eyes?" asked Bumper, whose little brain was still bursting with questions.

"No, dear, they do not—only those rabbits that come from snowballs have pink eyes!"

"Oh!" exclaimed one and all, and particularly Bumper, who had started all this probing into the family history.

Then the last question of the little girl popped up into his head, and without waiting to catch his breath, or to give his mother time to think up a suitable answer, he blurted it out.

"Where did I get those long, fluffy ears, mother? The little girl said they were long and fluffy."

Just to make sure he had not been deceived, he pulled them right down between his two front paws, and looked at them. They were, indeed, long, silky and fluffy, and as white as snow.

Mother rabbit shook her head slowly just as if she intended to scold, and then said in the softest, gentlest of voices:

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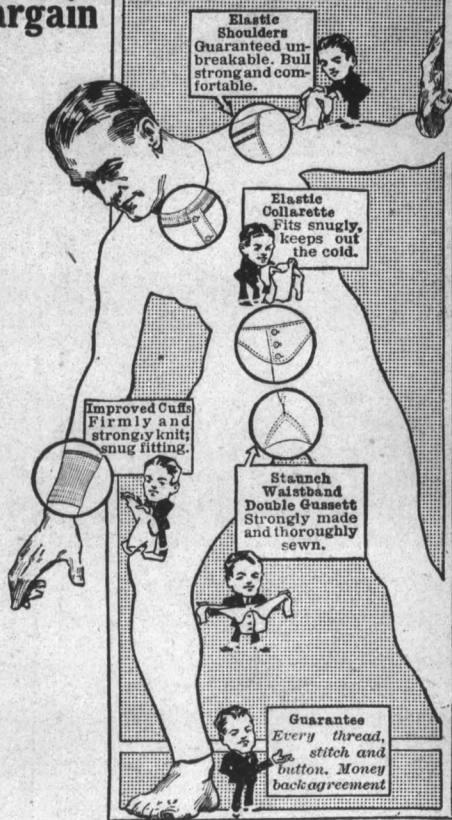
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You must be careful, and not let compliments about your eyes and ears spoil you. If you do people won't like you."

Bumper promised not to be spoiled by listening to what little girls said, and then eagerly repeated his question.

"Why, that is simple enough," Mother rabbit answered, having had time to think. "When you were only a little snowball, we had to hang you up to dry, and that pulled your ears out."

That was an answer good enough for any rabbit, and Mumper should have been satisfied, but he had a very inquisitive mind.

"But why didn't I melt when I was hung up to dry?" he asked quickly. "Snowballs melt in the sun, don't they?"

"Yes," gravely, "so they do, dear, if you leave them in the sun too long. But it was mother's business to see that you didn't melt. It's like baking bread or cake. If you leave the dough in the oven too long it burns up, and then it isn't either bread or cake. It's very hard to know just when it's done, and it's harder"—sighing aloud—"for mothers to know just when a snowball is turning into a white rabbit, and when it's beginning to melt away to nothing. Now don't ask me any more questions tonight. It's bed time, and little rabbits with pink eyes should be fast asleep."

Which was true, but Bumper went to sleep dreaming of a million questions he would ask his mother in the morning.

"CONTRABAND."

(Continued from page 410).

ly out of his teens, but with a hard, repulsive face, and at his left a dark-faced man, almost a negro, grinned horribly, as though death had stricken him even as he laughed. Nothing could be more awful to look upon than the gleam of his teeth, beneath the fantastic curl of his mustache. There were six altogether, five sitting upright in swivel chairs, screwed to the deck, or leaning forward with heads resting on the table. The sixth, gray-haired, and partially bald, had fallen side-ways, and lay in a shapeless heap on the rug. They had the look of seamen, and were roughly dressed, three of them plainly foreigners, one with rings in his ears. The big man alone possessed the appearance of leadership.

I saw all this in that one swift look. Breath had not come sobbing back to me, when Leayord's hand crushed my arm, and his voice rumbled into my ear.

"Good Lord, Captain! they're dead! they're all dead!"

"Yes," I answered, choking over the words, "there is no doubt of that. Something terrible has occurred here. Call—call the other men."

I heard him stumble out through the companion door, and the roar of his voice as he shouted to those forward; I could distinguish the sound of their feet on the deck, but could not remove my gaze from that awful sight in the cabin. The eyes of that giant dead man, staring at me so fixedly across the table, held me as in a vise—there was something so ghastly, so terrible, about their expression, as to rob me of all sense, all courage. The men joined me, Liverpool entering in advance, and pushing past where I stood. I have no recollection of seeing the others, although I felt and heard their presence. But I saw him—marked his sudden stop, the quick blanching of his face, and the sharp oath which burst from his lips, the swift incredulous look of surprise, of recognition, which leaped into his eyes. He was staring straight into the ghastly face of the giant opposite. I doubt if he even saw any of the others.

"Well I'll be hanged," he shouted. "If it isn't Gaston de Lys. So you've got it at last, you old devil!"

He leaped forward, circled the table

with a single stride, hate, memory, whatever the impulse might be, conquering all fear, and gripped his hand hard on the dead man's shoulder. And then he stiffened, every muscle of his body stricken; I could see death strike him, his jaw set, his eyes fixed—an instant he stood rigid; then his whole form seemed to contract and he fell lifeless to the deck.

I sprang toward him, but Masters gripped me, and hurled me back.

"Hands off—all of you!" he shouted. "Wait! don't lay a finger on any of them; you are dead men if you do."

"What do you mean, what is it?"

"The most diabolical bit of devilry ever contrived," he answered. "Those men have been killed by electricity; the current is still on. I heard the whirr of the dynamo as I came aft. Don't move until I find the switch and disconnect; stand where you are."

Perhaps he was gone five minutes; I could never tell; I saw nothing but those dead men; heard nothing but the heavy breathing of my mates in the doorway. No one spoke; but once, it seemed to me, I caught the throb of that deadly dynamo, yet even as I seemed to distinguish the faint sound, it ceased abruptly. Masters pushed in past me.

"Aye, that was the truth," he said, "but it's safe enough now. Lord! did you ever hear of such a cold-blooded crime. See here, men, the villain planned his job well, here are the wires along the deck, pressed into a seam, and connected to each swivel chair. See, the circuit is complete, and no one would ever suspect. All he had to do was stand back there in the steward's pantry, and press the switch. Those six men died before they could wink an eye."

"But the fellow who did it, what has become of him?"

Masters shook his head.

"I don't know, sir; but there must have been one; there ain't none of these dead men who could have turned the trick."

"Perhaps it was that cuss dangle over the side, Captain," said White's voice, from behind the others.

"What is that?"

"There's a fellow got jammed in a small boat along side, sir. I just happened to look over, and saw him a' hangin' there."

I glanced again about the cabin, and then into the faces of those grouped in the doorway.

"There is nothing more we can do here, is there, Masters?"

"Not a thing, sir; those men are sure dead, an' Red has gone along with his old friend."

A glance below revealed the whole story of accident. It was clear enough to be read instantly by a sailor's eyes. The man in his efforts at escape, had chosen one of the smaller boats, but one staunch, and well equipped. No doubt it had been secretly prepared in advance, for the lockers contained food and a beaker of fresh water was securely lashed to a front thwart. There was also a spar and sail aboard, safely secured, together with a pair of serviceable oars.

What had happened, as seemed clear to us, was this: a heavy brass-bound chest, of odd workmanship, and dingy appearance, had been stowed away in the bows. It must have been placed there with rope and pulley, for no single pair of arms could ever have lifted it over the rail. Then the fellow had clambered in, eager to be off, no doubt, and undertaken to lower the boat, standing probably amidships, where he could manipulate both ropes. But the forward rope must have jammed in the pulley, permitting the stern of the suspended boat to sag suddenly enough to send the heavy chest sliding aft. Before he could check the fall, or save himself by leaping overboard, it had pinned his legs against the stern sheets; and there he dangled still, his

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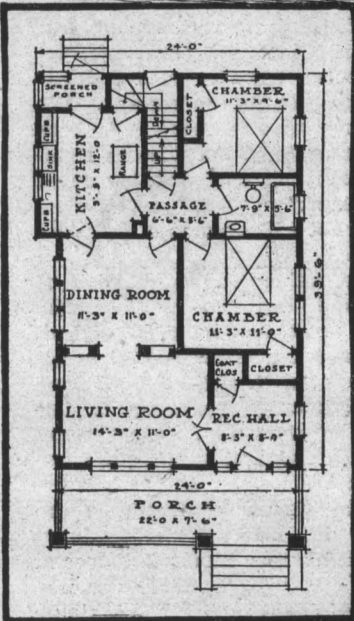
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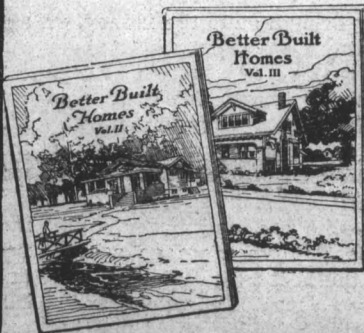
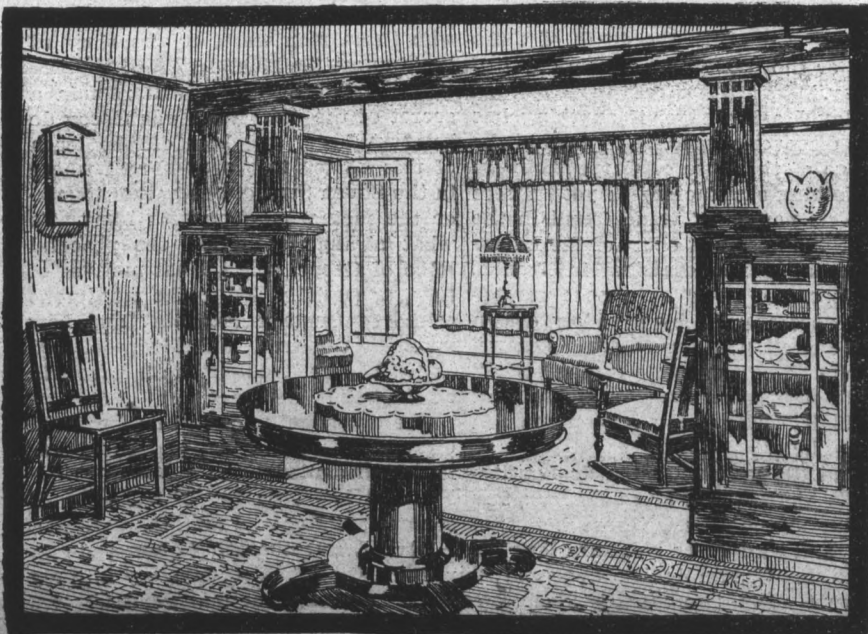
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face buried in the green water alongside, his knees crushed helplessly beneath the weight of the chest—an inert dead body.

"The fellow got his, sir," said Leayord solemnly. "Likely enough killed by the very thing he was tryin' to git away with. What shall we do with the boat and what's in it, sir?"

"Untangle that pulley slowly, and hoist up even with the rail," I answered. "We'll have a look at the man, and find out what's in the chest; it's an odd looking affair."

"Aye, aye, sir; Olson you man that other rope. A hundred years old, I'd say, an' stowed away in some odd corner o' the world at that. Now pull—steady; all the weight is on my end."

I helped balance it, and with White using his uninjured arm, we drew the dead man's body in over the rail. The two mates released his limbs from the grip of the chest, and we laid him out on the deck. He was an ill-looking fellow, deeply tanned, with a livid scar across one cheek, and an anchor tattooed on his forearm. Leayord drew a paper out of the inner pocket of his shirt, and passed it over to me. It was a letter with no date line, or signature, and had been so soaked in salt water as to be almost illegible. The only connecting words I could study out were: "De Lys has all his men but a cook; try to get on! he'll never know you after these years."

"Does it tell you anything, sir?" asked Olson anxiously.

"Not much; only this fellow sailed as cook, and got the job for a purpose. He had known De Lys years before."

"De Lys?"

"Yes; that was the name of the big fellow in the cabin; he must have been at the head of the party; the one Liverpool knew as Gaston De Lys. Get that chest onto the deck; no doubt the secret is there."

CHAPTER XXXIX.

A Secret of the Sea.

WE were compelled to resort to rope and pulley, and then search through the dead man's clothes to discover the key. Even with that found, it required the sharp edge of a hatchet to force open the cover. As it lifted the sight within was greeted with cries of astonishment.

"Good Lord, sir, it's money, and a stack of it!"

"English and French coins!"

"Aye, and Spanish!"

"This piece is Dutch!"

"There ain't a shiner there, sir, less than a hundred years old—look at this one 1763."

White's voice broke in above the babble, the old harsh croak I remembered so well:

"Well, see here lads," he shouted, "whose is all this gold anyhow, ain't it just naturally ours? It's sure no good to these yere dead men, an' there want nuthin' else aboard when we come. Then why ain't it ourn now to divide share an' share alike?"

"Sure it's ours," chimed in Masters eagerly. "We saved it and have a right to claim a share. That's sea law. What do you say, Mr. Hollis?"

"We undoubtedly have a claim," I answered, "for salvage; and if the heirs of the rightful owners are unable to prove themselves justly entitled to the gold, perhaps we might hold the entire amount."

"Piffle!" shouted White, "what's the use of all that poppycock! These fellows likely enough stole the money, or else dug it up somewhere. It never belonged to them any more'n it does to us. Nobody knows the stuff even exists. Why should we go around tellin' about it? I'm fer dividin' it up square between the five o' us—no, by Heavens, I'll count in the girl for a full share—the six, and never sayin' nuthin' about it when we go ashore. Ain't that the best way, mates?"

There was a mutter of voices, and a glance about at the faces told me that

Masters and Olson were ready enough to accept White's line of reasoning, while even Leayord felt the temptation. I knew also, without looking up, that Vera had crossed the deck quietly and now stood beside me, gazing down at the treasure revealed in the open chest.

"Do you agree to this Mr. Leayord?" I asked suddenly.

He lifted his eyes to mine in bewilderment.

"I don't just know, sir," he stammered. "It doesn't seem exactly the square thing—is it, sir?"

"No, it's not," I answered firmly, and I slammed down the cover, locked it, and put the key in my pocket. "Now look here, men, and you particularly, Jim White—this isn't our gold. I do not know who it belongs to, or how these dead men ever came into its possession. But there is a curse on the stuff, which has already cost the lives of eight men that we know of. No one has touched it, but to die. I'll tell you fellows plainly just what I'm going to do. I'm going to sail this schooner straight into St. John's harbor, with those dead men locked in the cabin, and the chest of gold here unopened on the deck. It is going to be English courts which will decide the ownership of this chest and its contents—not Jim White. Are you with me, Leayord?"

"Aye, aye, sir!"

"And you, Olson?"

"I suppose that's best, sir," reluctantly. "I don't want any trouble."

"I thought not; now fall to all of you, and shake the reefs out of those topsails. I'll take the wheel, and we'll point the bow toward port."

There is so little more of interest to be told, I scarcely know how best to express it in words. The three whom I had thus overruled were far from satisfied, but we gave them no opportunity for action. Either Leayord, or myself were always awake, and within sight of the chest, while Vera took her trick at the wheel, thus enabling us to keep the discontents busy forward most of the time. I was perfectly indifferent as to what they thought, or planned, being fully occupied in getting all possible speed out of the schooner. We slept on deck, no one among us having any desire to again enter the cabin which remained locked and left alone to its ghastly occupants.

The morning of the second day the speeding Rose of Gaspe rounded the northern head, and swept like a fair white bird into the beautiful harbor of St. John's. We tied up at Long Wharf, and, within an hour, I had told our story to the Port Captain, and officers of the marines had taken possession of the vessel. That very afternoon, the five of us gave testimony before the maritime court and were permitted to go free. Before leaving the courtroom the judge spoke with me privately.

"This is indeed a strange case, Captain Hollis," he said, "and, perhaps, the truth will never be learned, yet it is evident that you and your crew had nothing to do with the death of these men, or the possession of this chest of money."

"May I ask, Judge, if anything has been discovered tending to explain the voyage of the Rose of Gaspe?"

"Nothing satisfactory as yet. There were no papers of value found in the cabin—an excellent chart of the Labrador coast, a memorandum in French, so discolored as to be almost unreadable, accompanied by a rudely drawn map, and a list of the schooner's crew."

"What was the name of the cook?"

"He shipped as Gustave Montain, of St. Clair. There is no such man in that village."

"And the leader, Gaston de Lys?"

"We find trace of him only for a few months, Mr. Hollis. Where he came from, and whither he went are thus far unknown. Gaston de Lys appeared in Placenta some two months since, accompanied by one of the men who

died in the schooner's cabin—the one dark faced—like an Indian—and sought among the fishermen there for a certain type of boat. They were very particular, stating they wished to leave for a voyage of three months, representing themselves merely as travelers for pleasure who desired to cruise along the Labrador coast. At last they leased the Rose of Gaspe, from a man of wealth, Richard Martin, who had previously used the schooner as a private yacht. It was refitted and provisioned, and the crew arrived from Halifax. None of them was known in Placenta, but the inhabitants say that only two or three among them had the appearance of sailors. They put to sea seven weeks ago. Beyond that we know absolutely nothing."

"But the chest of coins, have you no knowledge as to where it came from?"

"No more than a mere guess; there is no guide. Beyond doubt this Gaston de Lys learned of its existence somewhere in Labrador, and planned its recovery. The men with him also knew what it was they sailed to seek. In my judgment this must be a treasure of the old Hudson's Bay Company, lost and hidden a hundred years ago, yet we can get no trace of such a disappearance of coin in the records. We cannot deny its existence; it is here now in our custody; but who its rightful owner may be, will probably never be determined."

"Then what will become of it?"

He smiled.

"That is rather a fine question of law. I should say that you men who recovered it at sea, have the best claim, although it must be held intact for a certain length of time to give any rightful claimant opportunity to furnish proof of ownership. Of course, in case no such claimant appears, the government takes its share."

"And the amount contained in the chest?"

"Exceeded seven hundred thousand dollars."

I rejoined Vera at the hotel, standing beside her in a window looking out upon the harbor. Below us was the white schooner in which we had ended our strange voyage.

"We are all free to go now, dear," I said. "The examination is all over."

"Have they found the owner of the money?"

"No; they have not even the slightest conception as to whom it originally belonged, or where it came from. The law compels them to hold it intact for the present."

"For how long?"

"Two years, I think; then the greater proportion is given to those who recovered it—the state retaining a certain share."

Her eyes met mine.

"I wonder if you know where my share will go, if I ever receive it?" she asked softly.

"I think I do, and mine will be added to it—to the mother and sister of Philip Bascom."

"Yes; and—and we may never know who these men were, or the story of their quest?"

"Most likely not; it will remain a secret of the sea. Who was Gaston de Lys? Where, and how did he learn of this hidden treasure? From where in the Seven Seas did he gather together the men who went with him? To what strange coast did the peaceful Rose of Gaspe sail? What motives of hate, or cupidity, led to the murderous crime of Gustave Montain? and how much of the truth did Liverpool Red know, had he lived, could he have lifted the veil?"

She was silent a long while, her hand clasped in mine; then she lifted her face, and smiled.

"It—it has been full of hardship, of sorrow, yet Robert I love the sea."

"And I, sweetheart," I answered earnestly, "for out of its mystery into my heart has come the one woman."

THE END.

Woman and Her Needs

Who Wants to Reform?

WOULDN'T it be nice if that chap who has invented a device to furnish a photo with a telephone message would fulfill Bobbie Burns' soulfully expressed wish, "Oh, wad some power the giftie gie us?"

Or if Thomas Edison, while he is working on his submarine "Defier" would discover the much-longed-for autoscope and turn it out as a by-product.

Wouldn't there be a rush to equip ourselves with these personal fault detectors? Or would there? I wonder, now, if we'd want them? Or would we shy off and refuse to equip ourselves, so we could be spared the effort of making ourselves over.

As a matter of fact, don't we just hug up tight to ourselves what our friends think are our worst vices, under the delusion that they are, our greatest virtues? And when our friends tell us, kindly or otherwise, where we are wrong, don't we fly mad and rare up and defend ourselves? If we had a mirror, which, like Snow White's, revealed our true selves, would we do any differently? I'm afraid not.

There's that habit some of us have of secretiveness. We make a virtue of our forte of keeping still. And it is a virtue to a certain extent. But the trouble is, the person who sets out not to talk too much always overworks the thing and doesn't talk enough. He keeps still when his word would straighten things out, perhaps by so doing keeping himself out of trouble but plunging someone else deeper in.

"I just kept out of the conversation," "I refused to take sides," "I knew Smith was wrong, but I wasn't going to get mixed up in it." How often we hear these remarks. Sometimes they are excusable, when the thing contended over is trivial. But all too often a matter of principle is involved, and keeping silence, instead of being a virtue, is merely an act of cowardice. Much as it would have been for America to longer keep silent over the fate of democracy.

Or perhaps we keep silent when we should give a word of praise. We withhold praise from our children or our employes, with the thought that we are not going to spoil them, or that they haven't done anything more than their duty and don't deserve a good word. But children and toilers both, if their efforts are never recognized, are apt to fall into the way of thinking that it doesn't matter what they do, nobody cares or notices.

Just as bad is the habit of "speaking our mind" on any and all occasions. "I just told them all what I thought," is all too often done when it was the time to keep still. "I wasn't going to sit there and keep still and let them think they could run over me." You know the type, the ones who know how everything should be done and would be glad to take on the job of running the universe. These folks who pride themselves on their outspokenness, would they want to get a peep at themselves?

Human nature seems to be made that way. We all make a great virtue of our worst fault or, rather, we convert what would be a virtue, if properly handled, into a fault by overdoing it. How many neat women turn this praiseworthy trait into a bugbear to the family by carrying it to excess. They must wage a battle with dirt and disorder it is true, but they overdo the matter and become regular Huns. All homelikeness is driven out of their houses by their over-great zeal to keep

things clean and picked up. While across the road, their neighbor looks at cleanliness overdone, decides she is not going to err that way and runs off to the other extreme, untidiness. She isn't "going to kill herself with housework," and becomes a sloven.

None of us ever get into these habits without warning. There's always someone ready, yea, even anxious, to tell us our faults. But we are never so anxious to mend. In fact, we think the other party is jealous of our superiority, and go right on in our good old way. So I say, I don't believe we'd equip ourselves with a device to show us our true selves if we could.

DEBORAH.

CONSERVATION DAY SUGGESTIONS.

Meatless Day.—Breakfast: Eggs en casserole. Dinner: Haddock. Supper, Fishballs.

Wheatless Day.—Cornmeal muffins without wheat flour. Dinner: Michigan brown bread; tapioca and grape juice pudding. Supper: Brown bread, baked bananas with currant jelly.

Cornmeal Muffins without Wheat Flour.—Four cups of yellow cornmeal, half cup granulated sugar, two teaspoons of salt, two heaping teaspoons baking powder. Stir thoroughly and add two eggs, two cups of whole milk and two heaping tablespoons shortening, melted and cooled.

Michigan Brown Bread.—Pour one pint of scalding water over two cups of cornmeal, either white or yellow; add two cups of rye flour, half a yeast cake dissolved in a fourth of a cup of lukewarm water, one cup molasses, one teaspoon of salt and one teaspoon of soda dissolved in one-fourth cup of lukewarm water. Pour into greased tins, let rise and bake in moderate oven. This makes one medium loaf. Double the quantity to make sufficient for two meals.

Tapioca and Grape Juice Pudding.—Soak a half-cup of tapioca in two cups of water for four hours. Then cook in double boiler until clear, with a pinch of salt and one cup of sugar. When the tapioca is transparent add one cup of grape juice, pour out in a pudding bowl and fold in the stiffly beaten whites of two eggs.

Baked Bananas.—Pull down one section of banana skin and loosen the pulp from the rest. Rearrange the skin, place bananas in a baking dish and bake in hot oven until skins are dark and pulp soft. Remove the pulp carefully so as not to bruise, and arrange in serving dish. Pour over a glass of hot, melted currant jelly. Serve piping hot. Remove all long coarse strings from the fruit before baking.

Eggs en Casserole.—These must either be prepared one at a time, or so carefully handled that the yolks are not broken. The eggs, of course, must be strictly fresh. Beat the whites until dry, with a pinch of salt, pile lightly in buttered individual baking dishes, or if you have not these, in buttered jelly glasses or drinking glasses, make a nest in the white and drop carefully into it the yolk. Set the dishes in a pan of warm water on a false bottom and cook slowly until the eggs rise and fill the dishes. Do not let the water boil.

Finnan Haddie, or haddock, more properly, may be bought of any grocer. Clean thoroughly with a damp cloth, put in roaster with a half cup of boiling water, cover and put in hot over for about a half hour. Remove to platter and pour over it a quarter-cup of



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melted butter or a pint of white sauce. Fish Balls.—Flake the haddock left from dinner. For one cup of fish allow one cup of mashed potatoes, two eggs and one cup of cracker crumbs. Mix the fish, potato and one egg beaten. Form in balls dip in flour, then in the other egg, beaten, then in finely rolled cracker crumbs and fry. Serve on a platter surrounded with fried potatoes and parsley or water cress.

USE OF POTATOES IN BREAD MAKING.

The pressure of war conditions has brought out the value of potatoes in bread making. In England potato flour was mixed with wheat and a peculiarly delicious bread resulted. In this country potato flour is not available to the average housewife, so the United States Department of Agriculture has devised recipes for the making of bread with simple, plain boiled potatoes mixed with the wheat flour.

This bread is said to be not only an economy, where potatoes are cheap and plentiful, but to supply a welcome variation from the usual bread. It has a rich brown crust, is tender and elastic, and the flavor is preferred by many to bread made wholly of wheat. It contains more moisture than ordinary bread, and therefore has longer keeping qualities.

To make four one-pound loaves take three pounds of boiled and peeled potatoes, two and one-fourth pounds of bread flour, one and one-half level teaspoons of salt, three level tablespoons of sugar, two cakes compressed yeast, four tablespoons of water.

Wash thoroughly and boil in their skins about twelve potatoes of medium size. Cook them until they are very tender. Drain, peel, and mash them while hot, being careful to leave no lumps. Allow the mashed potato to cool, or until lukewarm. To three pounds (five solidly packed half-pint cupsful), of the mashed potato, add the yeast, which has been rubbed smooth in a cup with three tablespoonsful of lukewarm water. To get all the yeast, rinse the cup with the remaining tablespoonsful of water and add this also to the potato. Next add the salt, the sugar, and about four ounces of the flour (one scant half-pint of sifted flour). Mix thoroughly with the hand, but do not add any more water at this stage.

Cover the mixing bowl to avoid the formation of a crust on top and place out of the way of drafts to rise, where the temperature cannot fall below 80 degrees F., or be much higher than 88 degrees F. Where the housewife has no thermometer she should see that the dough in all the risings is kept moderately warm, but not up to blood heat. Any water used in mixing the dough should be moderately warm, but by no means hot. This sponge, if kept at the proper temperature, should, after two hours, become quite light.

To this well-risen sponge, which now will be found to be quite soft, add the remainder of the flour, kneading thoroughly until a smooth and elastic dough has been formed. The dough must be very stiff, since the boiled potato contains a large amount of water which causes the dough to soften as it rises. Do not add water to the dough unless it is absolutely necessary to work in the flour. Set the dough back to rise again, temperature at about 86 degrees F., until it has trebled in volume, which will require another hour or two. Then divide the dough into four approximately equal parts, reserving a tiny lump weighing two or three ounces for an "indicator." Shape the sample into a ball and press it into the bottom of a small tumbler with straight sides. The glass should be slightly warmed. Note the volume of the ball of dough in the tumbler and mark the glass at twice this volume.

Mold the four portions into loaves and place in greased pans which have been slightly warmed. Place the glass

containing the "indicator" beside the pans and let all rise, under proper temperature, until the "indicator" shows that it has doubled in volume. Then place the loaves in the oven and bake in a good, steady heat (400 degrees to 425 degrees F.), for forty-five minutes.

To Test Oven.—Where no oven thermometer is at hand, a convenient test will be to put a teaspoonful of flour in an earthen dish in the oven. If this flour becomes 'light brown evenly throughout in five minutes' time, the oven is right for bread baking. If the flour scorches in that time, the oven is too hot.

HOME QUERIES.

O. S., Perfection, Mich.—The Cornell Bulletin gives the following directions for curing meat: "Before the meat is placed in pickle or salt, all corners and ragged edges should be cut off and used for sausage or lard. If they are left on they will be wasted, for they will be thoroughly soaked by the pickle and will be of no use. Rub the pork thoroughly with salt and pack it in a cool place over night. The next day place it in a barrel or an earthen jar, with the heaviest hams and shoulders at the bottom, the lighter hams and shoulders next, and the bacon at the top. Beef tongues may be cured in the same pickle with the pork. For every 100 pounds of meat weigh out ten pounds of salt, two and one-half pounds of brown sugar and two ounces of saltpeter. Rub these together thoroughly, taking care the saltpeter is finely powdered. Dissolve the whole by stirring it into four gallons of boiling water. Allow this brine to get cold and then pour it over the meat. If it does not entirely cover the meat add more water. The brine should cover the meat at all times. The meat may be weighted down with a block, if necessary, for if it projects it will decompose in a short time. If the brine shows signs of fermenting during the curing process, it should be drawn off, boiled, cooled, and then poured back over the meat. The bacon and tongues may be taken out in from four to six weeks and, after being washed in warm water, hung in the smokehouse and smoked. The lighter hams and shoulders may be taken out in six to eight weeks and the heavier ones at the end of the eighth week."

Write the Cornell University, Ithaca, New York, and ask for the bulletin, "The Curing of Meat and Meat Products on the Farm."

TO UTILIZE WORN-OUT WOOL SWEATERS.

BY GRACIA SHULL.

It is generally conceded that, when the sleeves of a wool sweater are worn out, the balance of the garment is valueless. I have proved this a great mistake. From several old sweaters I have made the following garments: One white, and one red wool petticoat for a thirteen-year-old girl, and a gray wool muff, auto bonnet, and muffler, for a nine-year-old girl. Another old, gray sweater body was utilized in making a pair of mittens, two pairs of wristlets, and two pairs of leggings for a pair of five and seven-year-old chaps. Two old blue sweaters were utilized in making the body parts of two comfortable petticoats for grandma. Also she unraveled an old black one and knit for herself a perfectly fascinating "nubia," a pair of mittens and some ear muffs and wristlets for grandpa. One of girlie's old, white sweaters, unraveled and combined with two skeins of pale blue yarn made me a dainty and useful crochet shawl. The thin parts of the sweaters are cut up in strips and used for rug or carpet rags. Of course, the sweaters mentioned are the accumulation from a large family for several years past.

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little girls, I pad them with gray or black sheet cotton, then line them with a piece of soft flannel, satine or other material I happen to have on hand. The muffs are finished with a perky bow, of inexpensive ribbon, in the center of front or on the upper corners. They look very pretty and are certainly "comfy." The hoods are also padded and lined, and finished with ribbon bows and strings. I have saved many, many dollars in the utilization of worn-out garments, but in finding a new use for worn-out sweaters I feel that I have struck a regular gold mine. Even the cotton sweaters may be used advantageously in leggings, petticoats and the like. I have made several pairs of heavy socks out of these cotton sweaters and the men folk think them fine to wear with their felt and rubber boots.

THE AMERICAN COLOR CARD.

BY ESTHER A. GOSSE.

When women of the household begin to talk about new dresses what do they speak of first? Color, always. "What is the color for this season? Is it red, which I can't wear, or blue, which I can wear?" And immediately begins a search of fashion books and other sources of style information before the cloth for the dress or suit is purchased. Once the important question of color is settled the rest is not so difficult. It may be silk, wool or cotton fabric, but color is the most personal consideration and that is chosen with great attention to details.

Every woman who discusses color and finally makes a choice helps in making up the American standard color card. She doesn't know it. Very likely no thought has been given to a color card and the chances are that a majority of American women do not know what a color card is. If they do not they are pardoned. America, even though its mechanical processes are the best in the world has always depended upon Europe for the colors of its textiles. For more than a century and a half Europe has dictated what colors the women on the remotest farm should wear, as well as the fashionable women surrounded by every luxury. From calico and gingham to the most expensive silk, all colorings were chosen by Europe. And American manufacturers never moved until the word came from abroad respecting the colors for the season. Probably manufacturers were unconscious of their dependence. It was the line of least resistance. The color card came at a specified time each year and it was not difficult to select the colors that seemed most desirable and make them up. That ended the trouble for that season.

But the war came and the 1914 card failed to arrive. So seriously was the lack felt that some mills closed. They didn't know what colors to select, and, rather than risk choosing a wrong shade, they closed to await the arrival of the French card.

A few progressive men in the textile trade say whither they were tending and decided upon an American card. The present standard card with 128 shades, and the three seasonal supplements with thirty-five to forty shades each, are the result. Now the textile industry of America is not dependent upon Europe for anything which enters into the manufacture of fabrics.

The American card is a cooperative institution to which textile manufacturers and stylists contribute information, which is supplemented by those engaged in millinery, ribbons, hosiery, gloves, sheetops, threads and other accessories required in making up a costume. The information is, therefore, as nearly accurate as it can be, and inasmuch as all contribute, it represents more than the opinion of a few. It is

the expression of opinion of all the trades that use color in styling fabrics or any of the accessories used with them.

Every woman who buys a dress pattern, a suit or a hat, performs her part in the choice of colors for that season and therefore becomes partially a part of the committee for the American card for that season. She goes to the store and buys a piece of goods. In doing so she expresses her particular liking for a color. Thousands more do the same, and shortly certain colors disappear from the retailers' stocks. They are obliged to replenish and in doing so order certain colors from their wholesaler's. Soon his stock is gone and he must order from the manufacturer and when his supply is exhausted he must go to the dyer. When the committee in charge of the duty of selecting the colors for the season begins work, they have a record of the color you chose for a new gown, as well as that of your neighbors. And shortly out of what appears a chaos of information comes something approaching order, and this ultimately takes shape in a preponderance of certain colors and shades.

On the other hand, information is available upon the colors you didn't buy so that procedure is made more certain. The experts allow nothing to escape them, and out of the mass of colors chosen and no end of recommendations and suggestions they finally make their choice of thirty or forty shades selected, expressing the preference of thousands of American women as shown in their purchases. The bits of fabric are dyed, fastened to the cards circulated among the manufacturers and the card for the season is complete. It is partly yours and you will do well to follow it in making your choice this season.

Its benefit is manifold, but what concerns women who buy cloth for costumes and accessories most is that they can buy in their own store and match perfectly in another, even though the continent divide them. Each color is given a name which in most cases is fairly descriptive, and a number which represents the colors and their proportions used in compounding. By knowing this name and number one may match perfectly anything one wants without the troublesome necessity of comparing. The experience is in the card, and the name and number will accomplish automatically what many have never been able to do, even with the closest scrutiny.

This is wholly an altruistic enterprise. The color committee serves without pay and aside from the executive staff no one draws a penny for doing the work. It is, therefore, one of the most perfectly cooperative movements ever inaugurated. Each one contributes what information he possesses for the good of all. When the first issue of the American standard card came out in 1915 it marked the severance of the relations between the textile industry of the New World and the Old. It was the declaration of American textile manufacturing independence.

GOVERNMENT WILL NOT SEIZE CANNED GOODS.

A widely circulated statement is to the effect that the government expects to take food supplies from families that have put up in excess of one hundred quarts. The authorities state emphatically that no such course has ever been contemplated by the government. On the contrary, both the Department of Agriculture and the Food Administration are strongly urging housewives to can and preserve all surplus fruits and vegetables in order that the households themselves may have a cheap and plentiful supply of food.

Columbia Grafonola and Columbia Records



**"Ask all the questions
you wish"**

SINCE you are the one to be satisfied, the Columbia dealer wants you to go the limit and ask all the questions about the Columbia Grafonola you wish—the more the better.

Learn the joy of buying a Grafonola the Columbia way. No hurry. No rush. Listen to as many records of your own selection as you wish. Play them on the different Columbia models.

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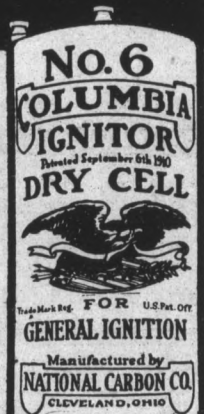
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Fastest stock spring-clip binding posts, no extra charge.



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Wanted a Capable Man to take charge of a stock farm, must be good caretaker and able to handle help. Good salary to right man. Box M, care Michigan Farmer, Detroit, Mich.

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Danish Cooperative Plans for Michigan

By JAS. N. McBRIDE

ARTICLE I.

THE bodily form with which cooperative movements should be clothed is of rather more importance, than generally understood. Just as soon as a number of persons are imbued with the spirit of acting as a unit then they must become a body corporate, and their rights and privileges are defined by the state under its laws.

Michigan has several laws for the grouping of cooperators to choose from. Three of those acts are for capital stock plans. There are provisions for limiting stock control, for proxy voting and of dividends and sharing of earnings after the dividends have been paid. The act of 1903 is, however, the only one that permits full freedom of action from the possibilities of prosecution under the Sherman anti-trust laws, when there is any concerted action with similar organizations. This act also is most susceptible to the employment of the Danish plans of cooperation, viz., the use of collective credit rather than that of collective capital.

It is well to understand that there is a community of interest in cooperative persons, acting in their corporate capacities, as seen in the meetings of the live stock shipping associations and of cooperative elevators. This is just as natural as any other business function, and almost indispensable. At this point arises the distinction that congress has laid down in the Clayton amendment to the Sherman anti-trust law. It was the puzzle of the best judicial minds of the country how to draw the legal lines that would keep the sheep of agricultural organizations from the goats with trust inclinations and all within a corporation form. Any organization with capital stock and existing for profit had all the possibilities that might be utilized for combinations in restraint of trade. So the language of the Clayton amendment to the Sherman law reads: "Agricultural or Horticultural corporations not organized for profit and not having capital stock should be exempt from the provisions of the Sherman act." Many have not seen that it was the intent to merely extend the producer's power to selling as an incident to production and not as a main feature and apart from agriculture. If a farmer went into the business as an investment or even as the main part of his business, then he should take his place with other corporations. The acid test of the immunity of the Clayton amendments is that profits must be declared on the basis of products sold and not on capital stock. This distinction when once clearly understood makes it extremely desirable to properly classify agricultural organizations.

The desire to play the game on the lines of big business with capital stock and dividends and yet want to be in the immune class places agriculture in the embarrassing position of always wanting special favors. It is the failure to see that the products or needs of the farm is to make the farm more profitable and that the investment outside the farm just as soon as one feels that the corporation is the profitable thing, capital stock and dividends, are of the first concern. When one can see the other viewpoint he is a farmer first and the more products he puts through the cooperative concern then the more profits he has and then the distinction is clear what the lawmakers had in view. The law does not recognize any fifty-fifty split of stock and limitations of ownership or dividends, with the genuine conception of cooperation as connected with the farm, and the profits being based entirely on the service that the farm furnishes to the business.

The Clayton amendment makes cooperation a safe place for democracy if it is democratic, but if it is subject

to control of stock and manipulation, and is for gain on the basis of stock owned or controlled, it is still unsafe and not immunized. How, then, can a cooperative organization be started and kept operating without shares of stock or at least, money to do business on or with?

The Danes solved this problem and, in fact, furnished the experience and rules that were laid down in the immunizing act. The first bond of a cooperative concern is a membership fee usually quite nominal which may be made annual or to be paid only once. The membership fees for small concerns pays the overhead expenses and clerical work of the enterprise. Larger and the greater number of enterprises pay but once and the usual membership is \$5.00. Then the estimated needs of the concern are gauged by its organization, and the amount of credit is determined.

Suppose that \$10,000 is needed; then 100 men give their individual non-interest bearing collateral notes for \$100 each, and when the concern needs this money in whole or in part a note of the corporation is given and these collateral notes used as security only. Each

This article by Michigan's efficient Market Director is the first of a series on "Basic Agricultural Economics." Read it carefully and think of the things Mr. McBride says in connection with your own community; then watch for Article II on "Price Determination," which will appear in an early issue.

individual is held only to the extent of his individual note. He has loaned his credit to the enterprise, and has not taken it out of his business. For example, if a car of feed is bought, the collateral notes are put in the bank, the cash discount secured, the pay collected and the bank repaid on the loan and the collateral notes returned to the corporation to be used on the next occasion.

On an elevator proposition where there is an investment and real property to be bought the plan is followed, a mortgage running to the local bank is executed with a portion of the notes hypothecated as additional security and the balance used for operating expenses. A sinking fund is provided and if the business is successful the mortgage discharged. The membership certificates then represent a value and are salable. There is, however, no incentive for any one not engaged in agriculture to buy them, since they pay no dividends, and are transferred usually with the sale of the farm to which they are part of the personal property or machinery for selling. The corporation usually buys in these memberships as a matter of accommodation and reissues them to new members.

The distinction here again is noted of the maintenance of the relation of the actual farm to its selling agency, rather than the tendency of the ownership to become a thing apart from the farms it was initiated to serve. A condition is conceivable that the business by reason of greatly increased real estate values might have its membership certificates vastly more than face value, and if the business were dissolved the distribution of assets would be on this basis, but that is an earning entirely apart from the scope of business it was chartered to do. All the possibilities of clique manipulation to change the character of the corporation is avoided by the Danish plan. Occasionally a man does not want to

sign a note but just wants to pay the cash and be done with the matter. A situation of this sort can be arranged by taking out a certificate of deposit and using this in place of the individual's note and paying him the interest arising from that certificate. It is, however, best not to take the capital out of the productive business to put into the distributing end, and is much easier to loan credit than to put up cash for stock. Banks as a rule are very glad of this form of collateral security. There is one note with gilt edge collateral back of it. It practically amounts to a community issuing bonds in their corporate capacity. Eventually the sinking fund retires the loan and the business hypothecated by mortgage may be sufficient for security. Michigan is pointed out in a circular issued by the United States Department of Agriculture as having this very desirable law. To cooperative organizations seeking the use of this machinery the following form of collateral note is in use:

Non-Interest Collateral Bearing Note.
No.
.....19...

Amount Forty Dollars

Also Limit of Liability

Time Limit of Note, 3 years from date.

For the purpose of securing credit for The Livingston Cooperative Association, being an organization incorporated under the laws of the State of Michigan, and for value received, I, the undersigned, promise to pay and hereby make and am firmly bound unto said organization or its assigns in the sum of Forty Dollars and authorize the use of this negotiable non-interest bearing note to be used as collateral to such indebtedness, and payable on demand in case of non-payment of any note or notes constituting such indebtedness and secured hereby.

The limit of liability of this note is in no case to exceed forty dollars, and shall be returned to the maker or his assigns at a date not later than three years, providing there is no liability contingent or otherwise, on account of the guarantee which this note supplies. I authorize the use of this demand note to remain in the custody of any bank or banker to establish a line of credit, under the terms and conditions as above set forth.

MICHIGAN FARMERS COOPERATE.

Washtenaw county farmers have formed the Ann Arbor Dairy Company, with \$35,000 capital and about seventy stockholders. The officers are: President, George McCalla; vice-president, Anthony Braun; secretary-treasurer, Carl Braun; directors, the officers, C. F. Staehler and F. H. Ticknor. The company will handle milk, butter, cheese and other dairy products in Ann Arbor.

The Farmers' Elevator Company at Portland, Ionia county, has paid off an indebtedness of \$3,200 carried over from last year, and this year's profit of \$800 has been placed in the sinking fund. C. W. Peake was re-elected as manager.

Genesee county farmers have opened a cooperative elevator at Mt. Morris and have hired I. N. Beach as manager. The officers are: President, S. V. Johnson; vice-president, Howard Cox; secretary, N. Murphy, Jr.; treasurer, Clark Hill.

Oakland county farmers living near Holly have formed the Holly Cooperative Produce Company, and will either build or buy an elevator at Holly. The directors are J. F. Joslyn, C. J. Lane, Ralph Fuller, W. J. Wolfe, J. O. McGinnis and Roy D. Thayer.

Shiawassee county farmers have formed a company and purchased an elevator at Durand. The officers are: President, E. Judson; vice-president, E. C. Roberts; secretary-treasurer, C. E. Ackerman.

The Saginaw County Farmers' Cooperative Association will enlarge its plant at Saginaw for the manufacture of cheese. The addition will also facilitate the handling of the company's milk business, which now exceeds 5000 quarts daily.

FRUIT AND VEGETABLE MARKETS.

The following information on jobbing prices and shipments is for the United States for the period of October 16-23, inclusive.

Apple Prices Continue Firm.

Yorks are jobbing at \$4.25 to \$5.25 per barrel on most markets although bringing as much as \$6 on some of the southern markets. Jonathans are jobbing from \$4 to \$7 per barrel though mostly \$5 to \$6.25. Washington Jonathans are selling at \$1.75 to \$2.50 per box. These prices are all about the same as a week ago with a firm tendency. The shipments of apples increased about 350 cars over those of a week ago. Washington with 1,606 cars moved, continues to be by far the heaviest shipping state. The movement increased from Virginia, New York, Missouri and Arkansas.

Onion Prices Advance.

F. o. b. prices for Massachusetts onions advanced during the past week from \$3 to \$3.25 and \$3.40 per 100-lb. sack. Jobbing prices are accordingly higher. Ohio stock is jobbing at \$3.35 to 3.75 or about 25 cents higher than a week ago, prices have advanced despite heavier movement of the crop. Massachusetts especially is now shipping heavier with more than twice as many cars moved this week as a week ago. California, New York and Ohio also shipped heavier.

Potato Market Unsettled.

Presque Isle potatoes are selling f. o. b. at \$4 to \$4.25 per 11-peck measure, which is about the same price as was received a week ago. However, during the week prices advanced as high as \$5 and are now declining. The situation in Presque Isle has been practically duplicated in the other important potato producing sections, that is, prices have advanced steadily during the past week, reaching the top notch during the middle of the week and are now declining. Jobbing prices have followed somewhat the same course. New Jersey Giants are now jobbing at \$3.75 to \$4.25 per 150-lb. sack, while Minnesota stock is going at \$1.25 to 1.65 per bushel, and Wisconsin about \$1.40 to 1.65 per bushel. The shipments of potatoes amounted to over 1000 cars per day during three days this past week. The movement was heavier from Maine, Michigan and Minnesota.

Other Fruits and Vegetables.

The peach season is practically over. Only about 300 cars were shipped this past week, which is 500 less than a week ago. New York is the only state shipping in any quantity and the crop is practically all moved from that state. Up to date, New York has shipped 7,185 cars or nearly 2,200 more than for the corresponding period last year.

Cabbage.—The Wisconsin crop is moving heavier but New York shipments declined this week. Minnesota came into prominence with a movement of about 200 cars as compared with a very few cars up to this time. Prices have advanced. New York stock is selling at \$30 to \$45 per ton as compared with \$28 to \$35 a week ago.

Celery appearing in large quantities on most markets. Shipments from New York were double those of a week ago. Colorado and Michigan, the other large celery states, moved about the same amount as a week ago.

Pears.—The total movement of pears is about the same as a week ago. However, Michigan doubled their shipments with resulting lower prices locally. Kieffers are reported as selling f. o. b. Michigan at 80 to 85 cents per bushel compared with \$1 a week ago.

COOPERATE TO ECONOMIZE.

"Any plan to promote saving, lowering prices and increasing quality to consumers is all right," said C. E. Bassett, of the United States Bureau of

Markets, in a talk on the organization of dairy cooperating marketing associations, judged under the rights of the Clayton Act. "But to organize just to boost prices is wrong." In other words, Mr. Bassett believes that the object of cooperative marketing cannot legitimately be price fixing, but that its legitimate object is to effect savings in methods of marketing.

WILL STOP SHIPPING POULTRY IN ICE.

That chilled drip-packed poultry reaches its destination in much better order than the wet, ice-packed product is shown, the United States Department of Agriculture states, by reports which are reaching it from various markets. The specialists of the department recently studied shipments of chilled dry-packed poultry and wet, ice-packed poultry which had been shipped in the same car. The dry-packed birds were in excellent condition, while the wet-packed were unfit for use on arrival at destination. The dry-packed product stands delays in transit far better than the ice-packed, especially during warm weather.

A number of packers, at the instance of the department, have changed from wet to dry packing. A number of others who have given the dry method a trial report that the results were superior to the old system but conditions prevent changing at present.

NEIGHBORHOOD STORING.

The Wisconsin State Council of Defense has approved a plan that is being carried out in Marathon county. A canning company in that county has offered its warehouse to the farmers and gardeners for storage purposes. This building has been available since September 1. It is kept at proper temperature and someone is there on specified days in the week to receive goods and receipt for withdrawals. By utilizing a neighborly community plan, produce will thus be safely stored at a slight cost to the grower.

The plan might well be copied elsewhere and so the idea is passed along.

Use Your Gas Engine All Winter



JOHNSON'S FREEZE-PROOF

At the close of a day's work it is not necessary to drain the water jacket of your engine. Johnson's Freeze-Proof will prevent the water from freezing in the coldest weather. You need have no hesitancy about using it in your stationary or gas engine, tractor or automobile for it is absolutely harmless. Johnson's Freeze-Proof does not injure rubber, cloth, packing or metal of any kind. It does not rust or corrode metal.

Economical and Easy

Johnson's Freeze-Proof is a most economical anti-freeze compound. It is very easy to use—simply dissolve in water and pour into the water jacket. One package is sufficient to prevent 3½ gals. of water from freezing at 5° below zero. For a larger quantity of water or to protect to a lower temperature use additional Freeze-Proof.

Does Not Evaporate

Johnson's Freeze-Proof does not evaporate with the water. One application is sufficient for the whole winter—you can even save it and use it again next winter if you wish. As evaporation takes place you simply add more water—the Freeze-Proof you originally used remains in the water jacket. Johnson's Freeze-Proof raises the boiling point of water 12° to 35°

For Your Automobile

Johnson's Freeze-Proof is universally used by automobilists to prevent their radiators from freezing. One package is sufficient to protect a Ford to 5° below zero.

Johnson's Freeze-Proof is put up in packages containing 6½ lbs. net which retail at \$1.50 each in U. S. A. Insist upon your dealer supplying you. It is readily procurable as practically all jobbers have it in stock. If your dealer cannot supply you we will fill your order direct by prepaid Parcel Post to points in U.S.A., East of the Rockies. Use attached coupon. S. C. JOHNSON & SON, Dept. 170 Racine, Wis. Established 1882

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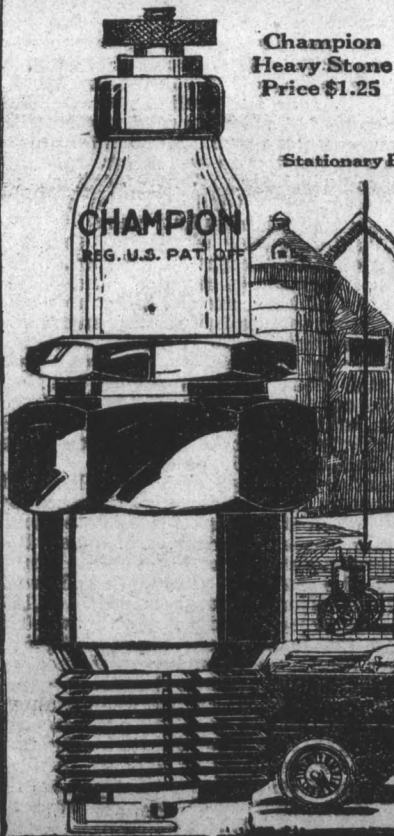
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Markets.

GRAINS AND SEEDS

October 30, 1917.

WHEAT.—There is very little change in the wheat marketing situation except possibly some increase in the amount of the grain farmers are bringing to the local elevators. A year ago the local price for No. 2 red wheat was \$1.88 per bushel. Prices remain \$2.17 for No. 2 red; \$2.15 for No. 2 white; \$2.15 for No. 2 mixed.

CORN.—The movement of corn has been interfered with by unfavorable weather conditions but in spite of the rains the new crop is now arriving at Missouri river points, which aided the bears in holding down values in the big markets on Monday of this week. The information is being forced upon the trade that the crop is in a much poorer condition than had been thought, and now many believe that the amount of merchantable corn will fall well down to the yield of 1916. Great quantities of immature and poorly cured corn are being fed upon the farms. A year ago the price for No. 3 corn on the local market was \$1.43 per bushel. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	2.08	2.10
Thursday	2.13	2.15
Friday	2.17	2.19
Saturday	2.18	2.20
Monday	2.19	2.20
Tuesday	2.19	2.20

Chicago.—Dec. \$1.18½; Jan. \$1.16; May \$1.13½.

OATS.—Domestic demand is absorbing current deliveries with the help of occasional buying spurts by exporters. Prices are steady at higher figures than ruled last week. Farmers are marketing the grain a little more freely. A year ago the price paid here for standard oats was 56½¢ per bushel. Last week's Detroit quotations were:

	No. 3 Standard.	White.
Wednesday	62½	62
Thursday	63	62½
Friday	63	62½
Saturday	63	62½
Monday	63	62½
Tuesday	62	61½

Chicago.—Dec. 58½¢; May 60½¢.

RYE.—Business is on a small scale with price fluctuations within narrow margins. Cash No. 2, \$1.80 per bushel.

BEANS.—The federal government's announcement of the price it would pay for beans for the army up to November 15 was a blow to prices over the country and on Monday following the Detroit quotation dropped 50 cents. Cash beans are now quoted at \$8.25. Saturday's price on the Chicago market was \$9@9.25 for Michigan pea beans, hand-picked. It is believed that further inquiry into the condition of this year's crop will lead the officials to adjust prices for army supplies upward after November 15.

SEEDS.—Prime red clover spot and March \$15; alsike \$13.40; timothy at \$3.75 per bushel.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$11.50; seconds \$11.40; straight \$11.10; spring patent \$12.10; rye flour \$11.20 per bbl.

FEED.—In 100-lb. sacks jobbing lots are: Bran \$36; standard middlings \$39; fine middlings \$42; cracked corn \$80.50; coarse corn meal \$75; corn and oat chop \$60 per ton.

HAY.—In carlots at Detroit: No. 1 timothy \$22.50@23; standard timothy \$21.50@23; No. 2 timothy \$20.50@21; light mixed \$21.50@22; No. 1 clover \$16.50@17.

Pittsburg.—No. 1 timothy \$26.50@27 a ton; No. 2 timothy \$24.50@25.50; No. 1 light mixed \$25@25.50; No. 1 clover, mixed \$25@25.50; No. 1 clover \$25.50@26.

STRAW.—In carlots on the track at Detroit: Rye straw \$9.50@10; wheat and oat straw \$8.50@9.

DAIRY PRODUCTS

BUTTER.—The market is liberally supplied and easy. Fresh creamery firsts 40@40½¢; fresh creamery extras 41@41½¢.

Elgin.—Values higher, and receipts are decreasing. One lot offered at 43c, which seems to represent present conditions.

Chicago.—Prices are practically unchanged, and trading is only of a moderate character. Creamery extras are quoted at 43c; packing stock 34½@35c.

POULTRY PRODUCTS

POULTRY.—(Live).—Poultry market is quoted steady with a fair demand for best grades. Best spring chickens 20@21c; hens 18@21c; ducks 24@25c; geese 18@20c; turkeys 24@25c.

Chicago.—There is a fair demand and offerings are quite liberal. Fowls sell at 14@14½¢; spring chickens at 17½¢; ducks 16@17c; geese 16@17c; turkeys, good 23c.

EGGS.—The egg market is firm and fresh firsts were quoted at 39@41c.

Chicago.—Market 1c higher for best lots. Fresh Michigan firsts sell for 37@38c; ordinary firsts 36@37c; miscellaneous lots, cases included 36@37½c.

FRUITS—VEGETABLES

APPLES.—(Oct. 29).—There were 50 cars of apples on Detroit tracks Monday morning. No early sales were reported. Cleveland trade is paying \$2.25 @2.50 per cwt. for Baldwins and \$7 a barrel for fancy Jonathans. Chicago market is steady with demand good. Best Jonathans were selling at \$6@6.25; Winesaps \$5 for the best; Ben Davis, orchard run \$2.50@3. The movement is slow at Pittsburg with prices ranging from \$5@6 for fancy grades.

GRAPES.—(Oct. 29).—Concords sold on the Detroit market Monday morning at 21c in unlabeled 4-qt. baskets. Chicago is paying 18@19c for the same grade and measure. Cincinnati 21c; Pittsburg 21@23c. At Westfield, N. Y., Concords sold at 20c for 4-qt. baskets and \$56@60 per ton in 20-lb. Jumbo baskets. At Benton Harbor, Mich., Concords in 4-qt. baskets 17½¢; 20-lb. Jumbo baskets \$50 per ton.

POTATOES.—(Oct. 29).—There were 79 cars of potatoes on the Detroit market on Monday morning. Round whites sacked sold at \$1.38 per bushel. Michigan round whites were selling on the New York market in 10-pk. sacks at \$3.50, and at Pittsburg at \$1.65 per bushel in bulk. The Cleveland trade were buying the same grade at \$4.25 per 10-pk. sack.

Shipments.—The daily shipments for the country last week averaged well around the thousand carload mark. The heavy shipping states were Maine, New York, Michigan, Wisconsin and Minnesota.

Shipping point information: Market was weak at Grand Rapids with round whites f. o. b. carloads bulk, \$2.10 per cwt. The Coldwater price for the same grade was \$1.35@1.43 per bushel. Minnesota growers are getting \$1.05@1.10 per bushel from wagons. Wisconsin farmers are paid \$1.50@1.60 per cwt. from wagons at sidetrack. Up in Maine Green Mountains are bringing \$3.50@3.75 per 11-pk. units from the farmers wagons.

CABBAGE.—(Oct. 29).—Prices are ruling higher than a week ago. Farmers are receiving \$30@34 per ton at loading points in New York for domestic, and \$36@40 for Danish.

ONIONS.—(Oct. 29).—The movement of this crop is very slow, attributed largely to weather conditions and lack of cars. The market, however, is firm and at Detroit on Monday of this week yellows sold at \$3.75 per 100-lb. sacks. On the city market the price for good stock was \$2 per bushel.

GRAND RAPIDS

Prices to growers per 100 lbs. for potatoes, round whites, during the past week, as reported to the government assistant in market surveys, stated at Grand Rapids, were mostly \$1.65 at Cadillac and points south and \$1.50@1.65 in Traverse City and Petoskey sections. Total car shipments out of Michigan up to October 27 reached 1560 cars, with heaviest shipments of late to Pittsburg and Detroit. Very few beans are offered and recent rains have badly damaged the crop. Beans are quoted on hand-picked basis at \$8 @8.75 per cwt.

DETROIT CITY MARKET

The rain and cold kept farmers and consumers from the market Tuesday morning, resulting in a smaller volume of business. Potatoes \$1.50@1.65; parsnips \$1.50; cabbage \$1.10@1.25; cauliflower \$2; onions \$2; carrots 75c; eggs 60c; fowls \$23c; no hay in sight.

LIVE STOCK

BUFFALO.

October 29, 1917.

Receipts here today as follows: Cattle 5,300; hogs 12,400; sheep 7,000; calves 1,300 head.

With 5,300 cattle here today the quality was very poor and what few good cattle were here sold unevenly higher. Bulk of the shipping cattle and best grades of butcher cattle sold 25@50c higher, in some cases 75c higher. What

few choice weighty cows were here sold unevenly higher, but the medium and common and canners were very slow and lower. The bulk of the best canners sold around \$4.75, with the throwouts down as low as \$3.25. There was a good strong demand for all the bulls and stockers and feeders and they sold at strong prices. We look for a fair run of cattle here next week and a good trade on anything that is fat.

Our receipts of hogs were somewhat lighter than a week ago, but 12,400 head on sale. Market got away to a good start at prices ranging from 10@20c higher than Saturday and closed firm with a good clearance. A few odd bunches of hogs sold from \$16.85@17 and a fair sprinkle from \$16.60@16.75, with the bulk around \$16.50; pigs and lights \$14.50@15; roughs \$15@15.25. Stags \$13@14. It looks like a good market for the next few days, but would not buy anything to sell at any higher prices.

With a moderate run of lambs today our market opened up slow and prices 35c lower than the close of last week. About three loads un-sold and we look for steady prices last of the week, to possibly shade higher.

We quote: Lambs \$16.35@16.50; cull to common \$12@16; yearlings \$12.50@14.50; wethers \$11.50@11.75; ewes \$11 @11.50; bucks \$7@9; best calves at \$14.25@14.50; common and light \$11@14; heavy \$10@13; grassers \$6@7.

CHICAGO.

October 29, 1917.

Cattle. Hogs. Sheep.
Receipts today..34,000 28,000 20,000
Same day 1916..27,270 59,291 31,261
Last week.....74,253 112,883 109,541
Same wk 1916...83,248 226,137 134,327

This week starts off with large receipts of cattle, including upward of 6,000 northern rangers. Desirable steers and butcher stock went at steady prices, some choice steers selling at \$16.85@17, but other kinds were very slow and looked 10@20c lower. Hogs were active and 10@15c higher, with a moderate supply, the best going at \$16.75. Hogs received last week averaged 208 pounds. Sheep and lambs sold at about steady prices.

The recent enormous break in cattle prices because of record receipts caused owners in many instances to hold back supplies last week, resulting in better prices, sales being largely 75c @ \$1 per cwt. higher. Steers grading as good sold at \$13.75 and upward, medium grade \$12 and upward. Ordinary steers of light weight sold at \$9 and upward, with scattering sales of inferior little steers on the canning order as low as \$5.40@6.50. Yearlings \$15.50 @17 for the better class, good yearlings \$13.50 and over, and sales ranged all the way down to \$10@11 for ordinary lots. The great bulk of the steers sold largely at \$8.85@13.50. Butcher stock shared in the sharp advances, cows going at \$6.50@9.25 and heifers at \$5.75@12.50, while cutters brought \$5.50@6.45, canners \$5@5.45 and bulls \$5.75@10.50. Calves were slow at lower prices, with light vealers purchased at \$13@15.25 and sales down to \$5.50@9.50 for the common to choice heavy weights. Western range cattle were active at better prices, steers selling at \$7.25@14.50 and sales down to \$5.40@6 for canners. There was a much higher market for stockers and feeders, with smaller offerings. Stockers found buyers at \$6.25@10, yearlings being the highest sellers, while feeders sold at \$8.25@12.

Hogs had declined in price recently so enormously that receipts showed a marked falling off in volume last week. By this means the decline was checked and some fair-sized upward movements in prices took place. More stable markets are needed to encourage farmers to produce hogs. Sharp declines or sharp advances tend to make owners of pigs undecided what course to follow, and just now owners of hogs require encouragement to hold on. The meat shortage is serious, and large supplies of hogs are going to be needed. Hog receipts in Chicago and other western markets for the week were far smaller in numbers than a year ago. At the close hogs brought \$14.10@16.75, comparing with \$14.50@16.80 a week earlier, while pigs sold at \$12@14 chiefly. Most of the choice hogs weighed under 250 pounds.

Lambs, yearlings and sheep brought extremely high prices for still another week, even if average prices ruled lower than a week earlier. As usual, the keenest demand was for feeding lambs from the ranges. Receipts showed marked gains in numbers, with 41,163 head arriving Monday. At the week's close fat lambs sold mostly 35@50c lower than a week earlier, with feeders largely 50c off, while breeding ewes went at \$11.50@17.50, whereas a short time ago the top was \$20. Sheep and yearling prices showed little change. Lambs closed at \$12.25@17.10, feeding lambs at \$16@17.75, yearlings at \$11.50 @14.25, wethers at \$11@12.85, ewes at \$6@11.25 and bucks at \$8@9.

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

November 1, 1917.

Cattle.

Receipts 2539. Canners 25c higher; all others strong at last week's prices. Best heavy steers \$10@10.50; best handy weight butcher steers \$9@9.25; mixed steers and heifers \$7@8; handy light butchers \$6.50@7; light butchers \$5.75@6.25; best cows \$7.50@8; butcher cows \$6@6.50; common cows \$5.80 @6; canners \$4.75@5.75; best heavy bulls \$7@7.50; bologna bulls \$6@7; stock bulls \$5.50@6; feeders \$7.50@8.25; stockers \$6.50@7.50; milkers and sprigners \$50@125.

Bishop, B. & H. sold Parker, W. & Co. 63 canners av 863 at \$5.50, 10 do av 950 at \$5.50, 23 butchers av 647 at \$6.50, 3 do av 740 at \$5.50, 19 do av 684 at \$6.35, 4 do av 625 at \$6.25, 14 do av 800 at \$7.25; to Sullivan P. Co. 4 do av 712 at \$6.25; to Mich. B. Co. 26 steers av 700 at \$6.75, 26 do av 722 at \$6.75, 4 canners av 890 at \$5.50, 1 do wgh 1200 at \$5.50, 5 butchers av 830 at \$6.75, 7 do av 1030 at \$6.25; to Garber 38 do av 530 at \$6.25; to Converse & B., 2 oxen av 1580 at \$8.50, 14 steers av 838 at \$7.50; to Goodgold 22 do av 717 at \$6.60; to Ratner 8 do av 790 at \$7; to Parker, W. & Co. 6 do av 950 at \$7.50, 5 do av 680 at \$6.50, 4 do av 750 at \$7.50, 5 do av 900 at \$7.50, 6 canners av 541 at \$5.75, 3 heifers av 583 at \$6.25, 2 do av 720 at \$6.50; to Hirschleman 22 steers av 800 at \$7; to Mich. B. Co. 4 do av 1007 at \$8, 14 do av 620 at \$6, 3 do av 973 at \$8.15, 2 do av 760 at \$7.50; to Hammond, S. & Co. 6 canners av 943 at \$5.50, 4 do av 975 at \$5.50; to Heyman 5 butchers av 640 at \$6, 1 cow wgh 1080 at \$6.25, 3 heifers av 733 at \$6.50; to Sullivan P. Co. 4 steers av 887 at \$8.15, 2 do av 1250 at \$7.15; to Funkburney 6 do av 721 at \$7.50; to Mason B. Co. 2 steers av 1020 at \$8, 2 do av 910 at \$7.50.

McMullen, K. & J. sold Kamman B. Co. 19 steers av 856 at \$8.25; to Applebaum 12 do av 586 at \$6.25; to Converse & B. 4 cows av 950 at \$5.35, 6 do av 1041 at \$6.25; to Sullivan P. Co. 1 canner wgh 1020 at \$5.25; to White 2 do av 965 at \$5.75, 5 do av 680 at \$5.25, 2 do av 825 at \$5, 7 do av 921 at \$5.25; to Sullivan P. Co. 18 butchers av 800 at \$6.75; to Golden 7 do av 736 at \$6.75; to Sullivan P. Co. 3 heifers av 390 at \$7, 4 do av 722 at \$6.50, 16 butchers av 872 at \$7.15; to Golden 4 do av 750 at \$7; to Ratner 6 do av 543 at \$6; to Dombach 7 do av 444 at \$5.75; to Streville 7 stockers av 636 at \$7.50; to Bray 1 canner wgh 700 at \$5.40, 9 do av 740 at \$5.60, 1 do wgh 730 at \$5.50; to Heyman 3 heifers av 612 at \$6.10; to Brown 16 butchers av 652 at \$6.75, 22 do av 627 at \$7, 6 do av 600 at \$6.50; to Goose 3 do av 550 at \$6, 5 do av 778 at \$6.90, 20 do av 535 at \$6; to Hirschleman 8 steers av 831 at \$8.10; to Rattkowsky 6 do av 683 at \$6.75; to Rice 14 feeders av 807 at \$8.25; to Pinkbeiner 26 butchers av 600 at \$7.25; to Goose 6 do av 640 at \$7.

Veal Calves.

Receipts 869. Market dull to 50c lower; heavy and common hard to sell. Best \$14; others \$7@12.

Sandel, S. B. & G. sold Thompson 3 av 170 at \$12, 1 wgh 130 at \$14, 2 av 130 at \$12, 4 av 175 at \$14.50, 2 av 235 at \$8, 3 av 130 at \$14, 5 av 115 at \$10, 3 av 175 at \$14.50, 2 av 145 at \$13; to Youngs 20 av 300 at \$7.50; to Rattkowsky 3 av 150 at \$14, 2 av 110 at \$10; to Nagle P. Co. 17 av 150 at \$14; to Mich. B. Co. 2 av 150 at \$14, 10 av 169 at \$14.

Erwin, S. & J. sold Sullivan P. Co. 8 av 145 at \$13.50; to Rattkowsky 2 av 160 at \$14; to Mich. B. Co. 20 av 150 at \$14; to Nagle P. Co. 2 av 225 at \$9, 2 av 140 at \$14; to Thompson 25 av 150 at \$14, 2 av 125 at \$10; to Goodgold 20 av 135 at \$13.50; to Burnstine 4 av 155 at \$14.

Sheep and Lambs.

Receipts 4354. Market steady. Best lambs \$16@16.25; fair lambs \$15@15.50; light to common lambs \$13.50@14.50; fair to good sheep \$10@11; culls and common \$6.50@8.

Sandel, S. B. & G. sold Nagle P. Co. 5 sheep av 110 at \$10, 5 do av 115 at \$7.50, 45 lambs av 70 at \$15.75, 13 do av 75 at \$15.25; to Thompson 8 do av 75 at \$15; to Parker, W. & Co. 47 do av 80 at \$16, 35 do av 83 at \$16; to Nagle P. Co. 5 sheep av 110 at \$9, 12 do av 105 at \$8.50, 8 do av 90 at \$8.50, 9 do av 108 at \$8.25, 33 lambs av 55 at \$14.50, 178 do av 73 at \$15.50; to Thompson 48 do av 65 at \$16.10; to Nagle P. Co. 36 do av 70 at \$15.50, 13 sheep av 105 at \$9.

Hogs.

Receipts 5662. Market 25@30c higher than on Wednesday; mixed grades \$16.25@16.75; a few at \$17; pigs \$15.

Report on Michigan Crops by Counties

In the following table are given the average estimates of crop yields for and acreages of fall grains sown in the several counties of Michigan. The yield of corn is given in number of baskets per acre. Sugar beets in tons and the remaining crops named in bushels. The acreages of wheat and rye sown are estimated in the per cent of normal acreages. Estimates were made by our special crop correspondents.

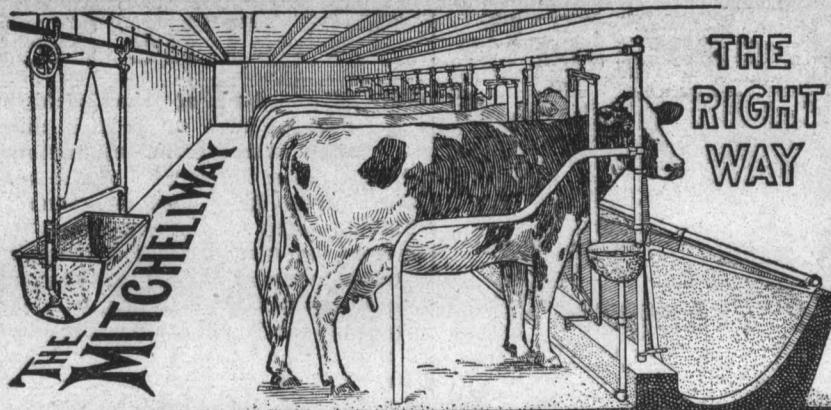
	Yield Per Acre.	Acreage.
Corn. (Bkts.)	Potatoes. Bush.	Wheat %
Alcona	125	77
Allegan	86	113
Alpena	80	120
Antrim	86	101
Arenac	114	25
Barry	100	110
Bay	91	91
Branch	106	116
Benzie	100	100
Berrien	58	115
Calhoun	129	95
Cass	84	107
Charlevoix	92	96
Cheboygan	80	144
Chippewa	60	80
Clare	75	100
Clinton	175	90
Crawford	50	100
Eaton	119	87
Emmet	105	98
Genesee	105	90
Gladwin	200	50
Gogebic	150	90
Gd. Traverse	106	111
Gratiot	118	93
Hillsdale	85	95
Houghton	150	105
Huron	108	96
Ingham	92	107
Ionia	165	85
Iosco	53	105
Iron	150	150
Isabella	87	80
Jackson	95	96
Kalamazoo	90	101
Kalkaska	104	104
Kent	107	83
Lake	99	101
Lapeer	91	94
Leelanaw	75	95
Lenawee	139	115
Livingston	128	93
Luce	35	105
Macomb	100	100
Mackinac	150	100
Mason	125	108
Manistee	60	82
Marquette	184	158
Mecosta	95	97
Midland	112	115
Missaukee	84	134
Monroe	85	100
Montcalm	67	70
Montmorency	78	175
Muskegon	45	100
Newaygo	72	104
Oakland	112	80
Oceana	122	115
Ogemaw	108	103
Ontonagon	112	185
Oscoda	47	89
Otsego	100	100
Ottawa	75	150
Presque Isle	79	105
Roscommon	95	101
Sanilac	72	90
Saginaw	81	92
Shiawassee	108	91
St. Clair	125	95
St. Joseph	57	102
Tuscola	31	111
Van Buren	97	69
Washtenaw	96	112
Wayne	93	94
Wexford	40	90
	12	50

HOW TO SAVE BEANS IN RAIN.

A proper and efficient means of saving beans during rainy weather, will if used, save to Michigan growers thousands of bushels annually. And in some instances will save the entire crop of some individual growers. I have made use of and am now using a method as follows: I pile the beans around the stake something like the old-fashioned method used when beans were pulled by hand. Material for one pile takes one stake about 1x3 in. by 4 ft., sharpened at both ends, one piece 1x4 in. by 3 ft., nailed across stake for base, about four inches from the lower end. Set stake up and lay two pieces, say 1x4 in. by 3 ft., across the base of standard, one end of each piece lays on the ground and the other end rises several inches, giving good circulation of air under, and keeping the beans off the ground. Pile the beans up to within three or four inches of top of stake, leaving stake sufficient to project up through a forkful of hay, put on to keep the rain out. Marsh hay, timothy or green alfalfa are good for this purpose. Put up in this way beans will stand all kinds of weather, and dry out between showers. Length of the base pieces and stake may be varied in accordance to dryness of beans, putting

into a bunch anywhere from a good forkful, if very wet, to several hundred pounds when partly dry. Bunch either in field or draw to high, convenient location. If short of lumber, any old sticks or pieces of boards may be used without nailing. V. P. SMITH.

Chronic Grease Heel.—I have a mare eleven years old that has been treated for more than twelve months by our local Vet. for scratches and he fails to effect a cure. The sores apparently heal, but soon crack open again. He has also prescribed internal treatment. J. S., Blissfield, Mich.—First of all, chronic grease heel, chronic scratches of twelve months standing is usually incurable. The skin usually remains harsh and thickened and seemingly loses its function. Apply equal parts tincture benzoin compound, tincture of iodine with a small brush once or twice a day, and some time later apply one part tannic acid, two parts glycerine in half a pint of water and apply with a brush once or twice a day. Give her a tablespoonful of Fowler's solution of arsenic at a dose in feed three times a day. In treating cases of this kind I find the majority of people apply some medicine occasionally and look for a recovery, but usually fail in their efforts.



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POULTRY.

BREEDING COCKERELS

Trapnested, bred-to-lay stock. S. O. White Leghorns, \$2 each. Barred Rocks and S. O. Reds, \$3 each.

SUNNYBROOK POULTRY FARM, Hillsdale, Mich.

JOHN'S big beautiful hen-hatched Barred Rocks, good layers. Breeding pens (5 birds) \$10 to \$20. Eggs \$30, \$2.50; 100, \$7. Circulars. Photo. John Northon, Clare, Mich.

Barred Rocks: EGGS FROM STRAIN with records to 297 eggs a year, \$2 per 15. Delivered by parcel post, prepaid. Circular free. Fred Astling, Constantine, Mich.

The Helpful Hen

THE readers of the Michigan Farmer have up to this time, been spared from any writings of mine, upon the subject of the hen. But in these days when everyone is thinking about food shortage, and the farmers are working and thinking to produce as much as they can of every needed product in their line, who can forget the hen? We can not, and after a matter has been in our mind just about so long, we have to write it off in order to obtain relief.

This is our apology for asking your attention to "The Helpful Hen" for just a little while.

If she really helps she must lay, and if she lays she must be well fed and cared for. How are we to feed her, and what grains shall we use when all feeds are so expensive?

A Farm Flock.

We have a small flock of Plymouth Rocks that went into the winter too young to lay much until last April. April is pretty late to have hens begin to lay, and we were discouraged before that time arrived. Of course, they did lay a few eggs before that date, but they did not really get down to business until just about that time. Since, they have laid practically a hundred and ten eggs each. This is not a wonderful record, but considering that they are still laying better than fifty per cent daily, it is enough to give one some courage at any rate.

Nine times out of ten, when hens do not lay in the summer, they have not enough to eat. We do not need to be so particular about balancing the ration in summer; for the old hen will usually get worms enough to supply her with the needed amount of protein.

When moulting time comes it is especially necessary to feed liberally, in order to insure an early return to work on the part of the hens. The tendency is to cut down the feed at this time and let the hens take care of themselves, because they do not furnish us with many eggs. But this is just the time when we should give them the best of care. If they are allowed to run down in flesh at this time it will take a long time to put them in condition again, and the chances are that it will not be done. If they have been neglected because the egg yield has fallen off, the same cause will continue to lead to farther neglect, for they will not begin again, unless they are better fed.

Feed Poultry Well.

A small flock of hens will take care of themselves in a way on the average farm, but it is seldom that it pays to let them do it. We might better feed them some grain all the time, to supplement what they are able to find, and receive a large income from them, than to take chances on their getting enough themselves to enable them to do much work for us.

Our nearest neighbor in one direction, has moved his small houses direct into the fields and given his young chickens the range of the entire clearing. In fact, they have come over into our fields in search of grasshoppers, which I am sure they were able to find. If there are those of the household who have the necessary time, the flock may be moved in this way, and the available hen food from each flock may be saved.

Of course, chickens are preferable to old hens for they do not lay, and so the eggs are not going to be deposited where they will not be found.

This season, when feeds are so very expensive, we ought to welcome any plan that will help us to furnish food for young fowls at little cost. What shall we feed during the coming winter? Eggs are going to be very high in price, but so also are feeds of every kind. First, we should carefully save our screenings. Then, if we are un-

fortunate enough to have any poor wheat, either shrunken badly, or smutty, so that it will not make good flour, we may feed that at better advantage than to sell it for feed to the miller, who must grind it, and sell it again to someone else, perhaps trusting that someone, for the pay. He is going to figure all these possibilities in when he makes you a price for that damaged wheat, and depend upon it, if he is a careful man, he is not going to pay too much for it.

Cheap Feeds for Poultry.

Don't sell it. Feed it to the hens. They will pay you more for it by and by, when eggs are—I don't know how much a dozen—than any miller can afford to pay you this fall.

And then, there is the oat crop—better than usual by far. Oats are excellent for hens. Many people do not appreciate the value of oats as hen feed, and so they miss an opportunity when oats are comparatively cheap. Perhaps corn may be much lower in price after the new crop comes on the market. If not, it will be expensive feed for any animal of the farm, except the human sort.

Wheat By-products Valuable.

Bran and middlings are not very expensive just now when bought in carlots, and if they are purchased for the dairy, the hens should be given their share. If a hopper feeder is provided, and kept supplied with bran and middlings, with a little cottonseed meal included, if plenty of grit and oyster shell is kept constantly before the flock, they will not consume as much whole grain and will be in excellent condition. As we have said, eggs are going to bring a very high price, and it might be that we could afford to feed almost anything under the circumstances, but it would not be good business practice to do it. Again, it would not be patriotic to do it. We want to leave as much of the corn and wheat as possible for human food. We must work and think harder than ever before to provide economical sources of food, and sources that do not lessen the food for human consumption any more than is absolutely necessary. Every bushel of wheat and corn that can be husbanded for us and our allies, still making provision for the various animals on the farms that are to do their part in feeding the "nations at war for Democracy," is just so much done for the cause of "permanent peace." It should be very easy to practice this kind of patriotism, for it adds to our financial advantage.

If the hens lay well this winter they must be well fed. The problem is how to feed them liberally and well, and still do so economically.

Keep Hens in Prime Condition.

An old saying is, "a job well begun, is half done." This applies in connection with our subject. If the hens go into winter in prime condition, they will do much better than otherwise. Plenty of green feed should be provided late in the fall for the flock.

Rape should be sown in the garden, after early garden crops have been removed. Rape makes an ideal feed for the hens at this time. They will eat long after they have to dig in the snow to get it, and it is good for them.

Of course, rape will not take the place of grain. Many people expect too much of roughage when fed to farm animals generally. Give the hens access to the rape, and then trust them with as much good grain as they want besides.

After it is no longer possible for them to be out of doors, provide them with ensilage, cabbage leaves, beets, or sprouted oats. Some succulent feed is helpful all through the winter.

Lastly, do not fail to give the flock sour milk or buttermilk every day. If not enough buttermilk can be had,

make it half water, and give it to them to drink. We have had experience enough to know the value of buttermilk, or sour skim-milk for growing fowls or laying hens, and we can not emphasize too strongly the importance of this part of the ration.

The hens will help us still more if we make better use of the many eggs she furnishes us during the summer. If, instead of selling these eggs week by week, to be shipped to the people who store them, we should store a part of them ourselves, in waterglass, it would add to our profits. A few days ago, we used the last of the eggs put down last fall. They were perfectly good.

Preserve Surplus Eggs.

I am not going to give directions here for doing this work, because this article is too long already, and also because the information is easily obtainable. But I do want to emphasize the value of this method of preserving eggs. We have heard of a few people who found their eggs spoiled when they wanted to use them, but we are sure that these people did not properly follow directions. There is not the least doubt about the eggs keeping if they are properly put down, and the work is not at all difficult.

So let us winter a flock of hens. Let us provide them with plenty of feed of the right kinds, as economically as we can, but let us give them the feed. Let us furnish some form of succulent feed for the winter, and by all means, let us not neglect to give them the skim-milk or the buttermilk. If we do these things, if we furnish them with a warm place in which to sleep, if they can keep their feet dry, and have plenty of pure air to breathe, with a chance to work, then, indeed, they will be "The Helpful Hens."

Oceana Co.

W. F. TAYLOR.

CHOICE COCKERELS VALUABLE.

Poultry breeders are carrying low stocks of male birds this fall, and indications point to a general shortage of breeding stock in the spring. This condition, due largely to high prices of feed, is important to practical poultrymen.

"People who have been accustomed to buying roosters in January and February to make up their breeding pens," says a poultry expert of the United States Food Administration, "are likely to be disappointed next year."

To be sure of an early start in poultry operations during the coming season, farmers and city flock-owners are advised to retain at least a few choice well-matured cockerels. Carrying them through the winter, even at a considerable cost for feed, is a wiser course than depending on the uncertain commercial supply.

POULTRY HOUSE REQUIREMENTS.

Not beauty, but efficiency, is of the greatest importance in the construction of a poultry house. The old hen will not worry about the color of the house, the grain of the lumber, the shape of the door knob or the fancy work on the padlock. If she is comfortable she will be contented. Of course, the house may match up nicely with the remainder of the farm buildings and it should be as neat as possible, but fresh air, sunshine and protection from storms must be considered first.

A well drained site is necessary or many days of the year the poultry house will be damp and the muddy earth around the outside will not be healthful for the birds. When the hens have to walk in the mud it will mean dirty eggs, and eggs that have to be washed before marketing are never as good for placing in storage.

Sunshine is the poultryman's friend. It assists in keeping the litter clean and dry and a sun bath is one of the

hen's most enjoyable diversions at any season of the year. The house must be constructed facing the south so that an abundance of sunshine can strike the floor over its entire area. The windows should not be too high but they can extend the length of the house.

The open-front house insures a supply of fresh air. If the front is covered with wire cloth much of the wind and rain will be broken and prevented from entering the house. In the winter curtains can be lowered to assist in keeping out the cold.

A square house is the most economical to build as the largest floor area can be obtained for the least material.

Ingham Co. R. G. KIRBY.

WET MASH VS. DRY MASH FOR THE LAYING HEN.

Wet mash was universally used until about ten years ago; poultrymen cannot agree, using both, but college experiments lean toward dry mash.

Dry mash can be hopper-fed at any time, but do not allow hoppers to get empty as a decrease in the egg yield will result. With plenty of room at the hoppers, there will be no crowding, and even the most timid birds will be given the opportunity to eat all they desire with little danger of over-eating, as they can't pick up much and prefer whole grain. Whether the hoppers should be opened all day or not, depends on the size of the flock. There should be a lid over feed to regulate amount eaten, and to close at night so rats and mice can't eat the food. Dry mash produces more fertile eggs, and there are no leavings to be gathered up later.

It increases the labor cost but stimulates the birds to keep up egg production as it increases the palatability of the food. Is slightly forcing, and might cause soft shell eggs.

It should be fed crumbly, not sloppy, as it is likely to cause bowel trouble, requiring more of an expert feeder.

There should be plenty of room at the feed-boards or crowding will result in which the vigorous birds will gorge themselves, and abuse the weaker. Care is also required to keep the feeding board clean.

Moist mash should be fed at noon, not as the evening feed, as it digests more quickly than grain. Grain is desirable as the evening feed as it stays in the digestive system longer. When fed moist mash in the morning, the birds are apt to gorge themselves and loaf during the day. Exercise is necessary for egg production.

Feed only what they will clean up quickly in ten or fifteen minutes, with no left-overs, or they will soon get off their feed.

With the moist mash we are able to use certain feeds to reduce cost, such as cracker crumbs, stale bread, cull beans or potatoes, and boiled infertile eggs.

I prefer to feed the dry mash in hoppers with a moist mash every other day to keep the appetite keen.

A home-made mash is desirable as we will know exactly its contents.

Ingham Co. FRANK DUBOIS.

TESTS OF FOOD FOR THE LAYING PULLETS.

In four experiments each of one year's duration, conducted by the Indiana Station, four lots of single-comb White Leghorn pullets were fed a basal ration of corn, wheat, oats, bran, and shorts 10:5:5:5, lot 1 receiving in addition 3.5 parts of meat scrap; lot 2, 3.6 parts of fish scrap; lot 3, from 50 to 62 parts of skim-milk, and lot 4 being used as a check lot.

It was found that the feeding value of meat scrap for Leghorn pullets was \$23.92 per 100 lbs.; of fish scrap \$27.65 per 100 lbs.; and of skim-milk, \$2.04 per 100 lbs. When fed skim-milk pullets laid slightly better in December and January. The meat scrap pen av-

eraged 135 eggs per pullet; the fish-scrap pen, 128 eggs; the skim-milk pen 135.4 eggs; and the no-meat food pen, 32.5. The consumption of the meat-scrap pen was 70.29 lbs. of feed per fowl at a cost of 98.4 cents; the fish-scrap pen was 74.13 lbs. of feed per fowl at a cost of 99.5 cents, and the no-meat food pen, 57.01 lbs. of feed per fowl at a cost of 72.2 cents. The consumption of the skim-milk pen was 63.86 lbs., excluding the milk, or when the milk was included 157.61 lbs., at a cost of \$1.10 per fowl. It costs an average of 8.5 cents to produce one dozen eggs in the meat-scrap pen, and 9.7 cents each in the fish-scrap and skim-milk pens.

The amount of dry matter to produce one pound of eggs in the meat-scrap and skim-milk pens was 3.7 lbs. each, and in the fish-scrap pen 4.02 lbs., and in the no-meat food pen, 13.53 lbs. Meat scrap, fish scrap, or skim-milk thus greatly increased the efficiency of the grain and dry mash feed. Meat scrap apparently produced slightly better fertility and hatchability of eggs than did the fish scrap or skim-milk, but birds fed neither skim-milk nor meat scrap showed slightly the best average fertility, and in two experiments the best hatchability. The profit in the meat-scrap pen was \$1.55, in the fish-scrap pen \$1.55, and in the skim-milk pen \$1.62. Birds receiving neither meat scrap, fish scrap, or skim-milk were kept at a loss. At 30 cents per 100 lbs., skim-milk is considered slightly more expensive to feed than meat scrap at \$2.50 per 100 lbs.

VETERINARY.

Eczema.—I have a seven-year-old horse that has had an itchy condition of the skin for the past sixty days. I have bathed him several times with one part water and thirty parts Zenoleum, and I thought it relieved him. I have also given him sulphur and cream of tartar occasionally. His skin is free from lumps or pimples, but every time he has an opportunity he scratches himself. J. C., Central Lake, Mich.—The mistake you made was in not following up the treatment of zenoleum and water, you should apply it twice a day, instead of occasionally and perhaps the first thing you should do is to clip the horse, then much less medicine would be required. Give him ½ oz. doses of Donovan's solution of arsenic twice daily in feed or drinking water for at least thirty days.

Hog Cholera.—What does your veterinary department recommend as a remedy to cure hog cholera? A. V. H., Grass Lake, Mich.—When hog cholera infection has thoroughly taken hold of the animal, remedies, especially drugs, cut very little figure in assisting nature to bring about a recovery. The owners of hogs knowing that this disease can pretty much be prevented by vaccination, should adopt this preventive treatment.

Open Teat.—We have a cow that met with an accident last summer, tearing off end of teat; since then she has leaked milk and as she has recently come fresh, she loses most of her milk from this one quarter. E. J. O., Beaverton, Mich.—Either use a teat plug to prevent flow of milk from teat canal, or dry her in this one quarter, or perhaps it would be just as well to leave her alone.

Foot Soreness.—I have a horse that is some footsore and one of the hoofs is cracked badly. What shall I apply to soften hoof? J. C. G., Schoolcraft, Mich.—Apply wool fat to hoofs once a day and have him shod by a good mechanic.

Partial Loss of Power.—We have a seven months old boar pig that drags his hind quarters, but does not show a symptom of sickness. W. H. A., Fennville, Mich.—Give him half a teaspoonful of air-slaked lime, 10 grs. of ground nux vomica and a teaspoonful of cooking soda at a dose in feed three times a day. Feed less corn, more oats, oil meal, tankage, clover, alfalfa and roots. Apply mustard and water to back and upper portion of hips twice a week.

Barren Cow.—I have a Holstein heifer that has been bred ten or twelve times during the past twelve months and has failed to get with calf. I might state that she has been served by different bulls. M. S., Essexville, Mich.—Doubtless your cow is barren and perhaps had better be beefed, or you might employ a Vet. to make an examination of her and ascertain the cause of her not breeding.

Produce Eggs at 17¢ a Doz.

The U. S. Dept. of Agriculture at the Experimental Farm, Beltsville, Md., during the past year has proven conclusively that if you make your hens LAY instead of allowing them to LOAF you should be able to produce eggs at a food cost of about 16½¢ per dozen, even at present feed prices—AND YOU CAN MAKE THEM LAY.

You may not do quite as well as the Government's experts but you can come mighty close to it by mixing

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POULTRY

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HOMESTEAD FARMS, Bloomingdale, Mich.

Barred Rock Cockerels bred from Great Layers few hens yet.
W. C. COFFMAN, R. 3, Benton Harbor, Mich.

Buttercups, I have a few cockerels, left for sale. Member A. B. C.
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GEORGE B. FERRIS, 324 Union, Grand Rapids, Mich.

Fowlers Buff Rocks Cockerels Pullets and hens for sale from two dollars up according to quality.
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R. I. Red Summer Sale. Rose Comb cocks and hens. R. Single comb hens and pullets. All at bargain prices. Cockerels after September 15th.
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EWES 15 registered Rambouillet ewes for sale.
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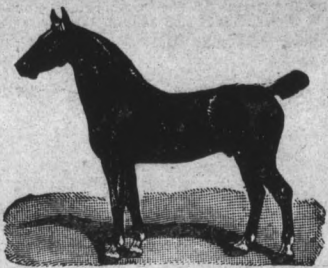
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\$3 Package guaranteed to give satisfaction or money
back. \$1 Package sufficient for ordinary cases.
MINERAL HEAVE REMEDY CO., 463 Fourth Ave., Pittsburg, Pa.

BUY THE HERD BOAR EARLY.

(Continued from page 399).

tankage and oil meal will be enough
for him while on pasture. A few weeks
before breeding time, it is better to
feed a little heavier so he is sure to be
in a good vigorous condition for ser-
vice.

We prefer to bring the sows to the
boar's pen at breeding time. One
breeding is sufficient. This method
enables the breeder to keep accurate
record so that when farrowing time
comes he will be able to make ample
preparation and have good warm sheds
ready for them so there need be no
loss from exposure or overcrowded
quarters. One good boar is capable of
serving fifty or sixty sows in a season
if properly managed. To do this, it
will require careful treatment, good
feeding and as much exercise as pos-
sible. The results should then be sat-
isfactory.

In purchasing a boar, it is better to
procure one fairly well developed. Some
breeders purchase them at weaning
time, but at that age they are not de-
veloped enough to bring out the desir-
able characteristics and although the
price is less then, their purchase may
prove to be a bad guess. They should
be at least four or five months old. The
breeder should not delay purchase un-
til the time for service has arrived. If
he does, the more desirable animals
will be gone and he will have a poor
choice.

SHEEP GROWERS TO BE ENCOUR- AGED.

Through the cooperation of the Mich-
igan Agricultural College and the Unit-
ed States Department of Agriculture,
an extension specialist in sheep hus-
bandry has been employed to devote
all of his time to the interests of the
sheep industry in Michigan.

The first object is to increase the
number of sheep in the state. Where
flockmasters are not in a position to
keep their promising ewe lambs and
cannot find sale for them as breeders
the specialist will locate prospective
breeders as purchasers. It is also hop-
ed to place upon Michigan farms and
cut-over lands a great many of the
western ewes that are being sold from
the ranges. A second object is to im-
prove the flocks of the state through
the use of pure-bred sires and the best
methods of shepharding. Thirdly, it is
aimed to center community interest

upon a single breed well adapted to
the conditions and methods of hand-
ling used there, thus bringing about
uniformity, and facilitating coopera-
tive marketing of wool and mutton.

Any sheep raising community in the
state interested in sheep breeding as-
sociations can secure the services of
this specialist free to help organize
and promote such associations. By
cooperation farmers in the southern
sheep feeding districts could rent or
buy northern cut-over lands and feed
their ewes at home through the winter
and lambing period, sending them
north to pasture in summer, placing
one man in charge of their combined
flocks. There are thousands of acres
of pasture land going to waste in Mich-
igan that should be producing high-
priced wool and mutton next year. Now
is the time to organize and make plans.

A wool famine is not only predicted
but almost upon us. Therefore, a spe-
cial appeal is made to sheep owners to
save from slaughter all ewe lambs and
old ewes of breeding value. All in-
quiries in regard to sheep, sheep or-
ganization, or available pastures
should be addressed to Verne A. Free-
man, Extension Specialist in Sheep
Husbandry, East Lansing, Mich.

FEEDERS' PROBLEMS.

Tankage as a Hog Feed.

I have been a reader of your paper
for some time and would like to get
some information through its columns
about feeding digester tankage, 60 per
cent protein, to fattening hogs, also to
pigs just weaned. I have ear corn,
ground barley and soft corn to feed
with it. What part in pounds can it
be fed with corn or barley, or would it
do to feed it with any other feeds, such
as middlings, roots, cooked pumpkin
or skim-milk? This is a new feed to
me and would be glad to learn the
right way to feed it.

Arenac Co.

J. J. W.

Tankage or meat meal has been
found to be a valuable supplementary
feed for either growing or fattening
hogs where corn or other carbonaceous
feeds, as barley, are used as the prin-
cipal factor in the ration. Many ex-
periments indicate that for fattening
hogs weighing over one hundred
pounds each, about nine to ten per
cent of tankage in the ration is the
most profitable amount to use where
pigs are fed in a dry lot. Where pas-
tured on alfalfa or clover pasture, the
amount can be reduced to five per
cent with equally good results, since
the clover and alfalfa furnish a consid-
erable degree of the protein and min-

eral matter in which the tankage is
rich.

For young pigs just after weaning,
a large amount of tankage can be
profitably used where no other protein
concentrates are provided. As high as
twenty per cent of the ration may profit-
ably be made up of tankage where
combined with corn, but if only ten
per cent is fed and the balance of the
protein needed is made up of linseed
meal, wheat middlings, etc., still bet-
ter results will be secured.

Where skim-milk is available and
can be fed in quantities ranging from
one to three pounds of the skim-milk
to one pound of corn or other carbo-
naceous feeds, depending upon the age
of the pigs, the tankage can be elimi-
nated from the ration, as the skim-
milk will furnish both the protein and
mineral matter needed. Tankage in
fact, ranks next to skim-milk as a sup-
plementary pig feed. Where only a
limited quantity of milk is available,
the balance of protein required can be
made up of the tankage and the other
feeds mentioned to good advantage.

In the Iowa hog feeding experiments
some interesting facts have been de-
veloped with regard to the amount of
tankage required in the ration, as
gauged by the pigs' appetite. Where
hogs were fed on a self-feeder under
the so-called "free choice" system, corn
and other feeds being fed in separate
feeders or other compartments of the
same feeder, it has been found that
pigs would consume about the same
proportion of tankage which has been
demonstrated to give the best results
under hand-feeding methods, or about
ten per cent of the ration where tank-
age is fed in combination with corn.

All recent trials tend to prove that
this is the most economical method of
hog feeding, but where other feeds, as
soft corn are available, as will be the
case in many localities this year, the
tankage should be fed along with other
supplementary grains either in dry
form or as a slop.

The addition of cooked roots or
pumpkins would not obviate the neces-
sity of feeding tankage or some other
protein concentrate for best results.
Middlings constitute a well balanced
feed for pigs without other addition,
and where they are made a factor in
the ration, less tankage would be re-
quired. This element in the ration
could then be reduced to nine or ten per
cent of the carbonaceous feeds used in
the combination to make a well-bal-
anced ration. The feeding of a balanc-
ed ration enables the pig or other ani-
mal to better utilize the carbonaceous
feeds and in this way prevents a waste
of feed, at the same time giving better
results, particularly with growing ani-
mals.

The Kind of Live Stock to Feed.

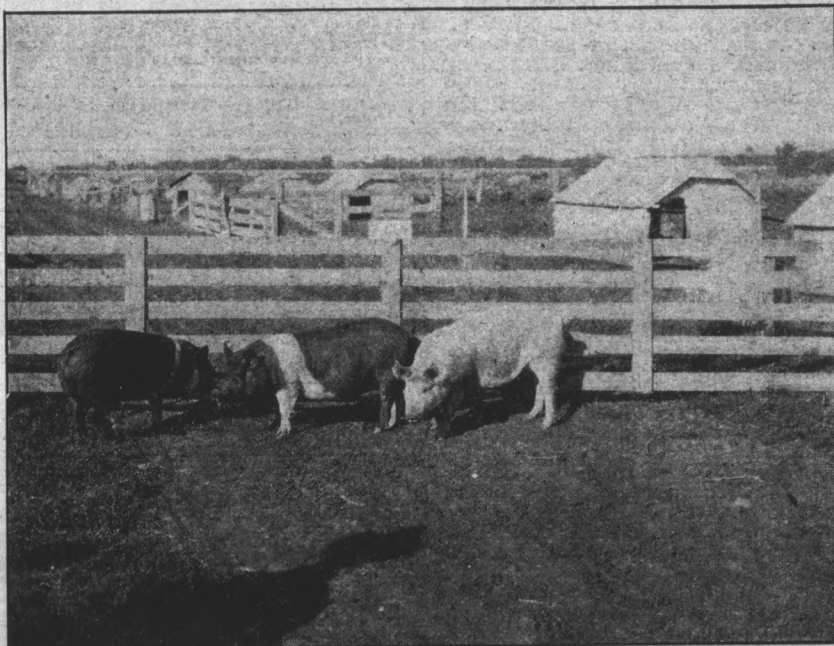
I have been a reader of your success-
ful paper for about twenty years, and
would like the privilege of asking other
readers, as well as the editor, what,
at the present prices would be the best
investment. I have fifteen thrifty
spring calves worth around \$500.
Should I keep the calves and grow
and feed them one year from this fall,
or sell the calves now and invest the
money in ewes, or invest the money
in milch cows?

Ingham Co.

SUBSCRIBER.

This inquirer has failed to give im-
portant facts in this inquiry which are
essential to intelligent advice on his
problem, such as the character of the
feed available, the stabling conditions
and equipment for caring for the differ-
ent kinds of live stock mentioned, the
sort of pasture which will be available
next summer, etc.

One thing, however, is certain, and
that is that it will be profitable to feed
these thrifty young calves well during
the winter, run them over on good pas-
ture next summer and finish them off
with grain feed next fall. This will be
particularly true if the calves are
grades of the beef breeds, and even if
they are dairy-bred calves, there will
still be profit in the transaction, but
the period of feeding should be short-
ened in the latter case. The calves



The Supplementing of Corn on Rape Pasture Produces Heavier Hogs.

The short-tailed pig on left received corn, self-fed, on rape pasture; the
middle one, bigger and fatter, received sixty per cent tankage in a separate
added feeder. The white shote on the right was fed same as the wide belted
middle pig excepting that corn gluten feed was mixed equal parts by weight
with the tankage. The daily gains were for corn only, less than a pound,
or .84; corn plus tankage, over a pound, or 1.25; and the corn plus gluten-
tankage, 1.21 pounds. The marginal profits per pig over and above feed
costs show \$4.43, \$5.80 and \$5.52 respectively. It pays to supplement
the corn grain ration on good pasture such as rape. Hence, why not supplement
the corn and reap greater dividends? The best feeders are going it and are
winning thereby.—John M. Eyvard, Iowa Exp. Station.

could be kept through the winter with very little work if they are dehorned and run together in a stable or shed instead of feeding them in stalls or stanchions.

There is also certain to be a good profit in sheep, but sheep are very high in price at the present time, and it would be better to grow into the business by the purchase of a few head than to sacrifice this herd of calves to go into it on a more extensive scale.

In the question whether the purchase of cows would be a better investment than feeding the calves, other factors are involved, such as the available market for dairy products, the question of increased labor in caring for the cows, etc. This is a question which can be solved rightly only by the farmer himself. It is, however, undoubtedly a wise move for every farmer to make live stock production as prominent in his scheme of farming as circumstances will permit, because of the exceptional opportunities in this line of production, and the fact that increased production of meat products is an essential need of the country at the present time.

Feeding Value of Skim-milk.

What is the value of skim-milk per 100 lbs. if fed to hogs, with mill feeds worth 2½ to three cents per pound, and hogs on the hoof at 14½¢. I can get about 60 or 65 cents out of the skim-milk by selling the whole milk instead of butter-fat. Which will pay the best?

Washtenaw Co.

W. I. R.

Several rules have been laid down to determine the feeding value of skim-milk. One of the most universally favored of these is as follows: To find the value of 100 pounds of skim-milk when fed with corn or barley at the rate of one to three pounds of skim-milk to one pound of grain, multiply the market price of live hogs by six. If fed alone or in combination with mill feeds multiply the market price of hogs by five to find the feeding value of skim-milk. Under this rule, with hogs at the price mentioned in this inquiry, skim-milk would have a value of eighty-nine cents per cwt. if fed with corn or barley, or seventy-two and one-half cents per cwt. if fed in combination with less carbonaceous feeds.

Another rule is that when skim-milk is fed with corn to fattening hogs, its value is half the market price of corn per bushel, which under normal conditions will give approximately the same feeding value to skim-milk as the former rule.

Feeding Barley to Hogs.

Will you kindly advise me the best method to feed barley to hogs, for growing purposes, also for fattening purposes? Which is the best feed of these three to fatten hogs: Rye, barley, and soft corn? There is no corn here except that which is soft.

Mecosta Co.

I. P.

Barley should always be ground for hogs, and is best fed to growing hogs in connection with other feeds, preferably middlings or some nitrogenous concentrate. If fed on pasture, all recent experiments indicate that the most economical way of feeding either growing or fattening hogs is with a self-feeder, giving them a mixed ration, or permitting them a "free choice" of different feeds fed in separate feeders or separate compartments of the same feeder. Ground barley, however, can be fed in the form of slop to good advantage. It has a slightly less feeding value than corn, and is not quite as palatable to the hogs.

Soft corn should be utilized as at least a portion of the ration where it is available, as feeding hogs is the most economical use which can be made of this feed.

Rye is an excellent hog feed, comparing favorably with barley, and requiring about the same treatment in feeding. It is, however, higher in price than barley and higher than corn will be after the new crop is harvested, so that it would not be an economic feed under present conditions, provid-

ed other feeds are available as above noted.

HERE ARE TWO METHODS OF CURING PORK.

Hog killing time is coming. It is especially important this year that each family cure an abundant supply of meat. P. F. Trowbridge, of the University of Missouri College of Agriculture, offers two methods of curing pork:

Dry Cure.—Do not cut up the pork until the carcass is well chilled. Make a mixture of clean fine salt forty pounds, white or brown sugar ten pounds, white or black pepper four pounds, red pepper one-half pound. This will make enough cure for about 1000 pounds of pork. If saltpeter is desired, use two pounds in the above mixture. It will give a red color to the lean meat but has a tendency to harden the meat too much. Chili saltpeter may be used instead of the regular saltpeter by taking about twenty per cent less.

Rub each piece of meat thoroughly with the cure. Take special care to work the cure around the ends of bone of hams and shoulders. Pack skin down on a table or in a box in a cool airy place. Do not place in direct sunlight or in a damp musty cellar. After four or five days overhaul the meat, rub thoroughly with the cure and repack; repeat this in about a week. Hams and shoulders should remain in the cure from one and a half to two days per pound weight of piece; the latter time is safer for meat that is to be kept during the summer. Bacon should be in the cure a shorter time. Ten days will give a very nice mild cure to a six or eight pound piece.

Brine Cure.—Make a brine by boiling seven pounds of clean salt and two pounds of white or brown sugar with two gallons of water. If saltpeter is desired add one-fourth pound. This gives about enough to cover one hundred pounds of pork when well packed. Sprinkle a little clean fine salt in the bottom of the barrel, rub each piece of meat lightly with the salt, sprinkle a light layer of salt between each layer of meat. Put on a board and weight down with a rock. Allow to stand overnight. Tip the barrel on side and allow the liquor to run out. Cover the meat with the cold brine and allow to stand in a cool place for four or five days. Overhaul, repack, and cover with the same brine. Repeat in about a week. Give the meat the same length of time for curing as with the dry cure.

When the curing is complete wash off the excess cure and hang in the smokehouse. Meat kept in the cure too long should be soaked in warm water to remove the excess of the cure. Smoke with hickory, oak, apple, or any non-resinous wood. Avoid all wood of the pine family. With a continuous smudge the smoking can be completed in twenty-four hours. With intermittent smoking longer time is necessary as cold meat "takes the smoke" slowly. Wrap the meat to keep it away from the skippers. If rats or mice get at the meat they open a way for the skippers. In damp weather cured meats will mold. This is not injurious except it is advisable to use up shoulders, as the mold grows in the cracks and calls for excessive trimming.

C. R. Dysart, of Andrew county, Mo., showed up in the Chicago market on a recent day with a shipment of eight carloads of cattle. He obtained \$15.50 per 100 pounds for 60 head of yearlings which averaged 1075 pounds. His cattle had been on a full feed of corn since the first day of May, and during the last 60 days they were fed five pounds of molasses feed. The cattle were bought last December and roughed along on pasture, stalk fields, hay and shock corn. Mr. Dysart said the best gains were made during August and September, after being put on full feed.

Which is Cheapest and Best Ration for Fattening Hogs?

Four Valuable Experiment Station Tests

Here is some mighty valuable information for hog raisers. Four instructive feeding experiments were conducted under the supervision of the Missouri and Kansas Experiment Stations at the St. Joseph, Mo., Stock Yards, to determine the comparative values of different rations for fattening hogs.

60 Cholera-immune hogs were selected and divided into lots of 15 each, as uniform in weight, quality and condition as possible.

The First Thing the Experts Did

Previous to starting this feeding test, the first thing the experts did was to get rid of the worms. They knew the importance of this step because no hog can thrive or fatten to best advantage unless free from these blood-sucking, feed-consuming, disease-breeding pests. They also knew that all hogs, unless previously treated, are always infested with worms. This is a very important point for you to remember—especially now when feed prices are so high.

Following is a result of the tests covering a period of 100 days:

- Lot No. 1** with a ration of shelled corn and tankage (60% protein) made a total gain of 181.4 lbs., per hog and a net profit of \$5.78 each.
- Lot No. 2** with a ration of shelled corn and linseed meal (old process) made a gain of 147.2 lbs., per hog and a net profit of \$3.95 each.
- Lot No. 3** with a ration of shelled corn alone made a total gain of only 110.5 lbs., per hog and a net profit of only \$1.88 per hog.
- Lot No. 4** with a ration of shelled corn and skim-milk made a total gain of 190.8 lbs., per hog and a net profit of \$6.53 per hog for the 100 days feeding. This lot made the greatest gain and the most profit.

No matter how YOU are feeding YOUR hogs, it is absolutely necessary, in order to get the cheapest and best results, that they are kept free from worms. You cannot afford to neglect giving them a good worm remedy like SAL-VET—the greatest, safest, surest and most widely used worm destroyer and conditioner—the cheapest and best worm remedy you can buy.

For only 2½¢ per month per hog you can keep your hogs free from worms, save feed, get faster gains, make maximum profits and avoid dangerous diseases, because healthy, worm-free hogs are less liable to contract fatal diseases. SAL-VET is not only best for hogs, but for sheep, horses and cattle.

"Please send us two barrels of SAL-VET at once. This is the best thing we have ever used. We use it for sheep, horses and over 100 hogs and find it all you claim."

A. J. LOVEJOY, Reascoe, Illinois.

Ex-Pres. International Live Stock Exhibit, Sec. Berkshire Breeder's Ass'n.

"My SAL-VET is all gone. Send me another barrel at once. \$5.00 worth of SAL-VET saved me \$10.00 worth of feed. My hogs, sheep, cows and horses are doing remarkably well. My experience has been that SAL-VET and worms cannot dwell together."

E. A. DONTRAGER, Fairview, Mich.

"I have been in the hog business for thirty years and have tried every known remedy for hogs, but have never found anything to equal your SAL-VET. It certainly does the work and is easy to feed. I fed it to little pigs, boars, pregnant sows and find it O. K. I'll never be without SAL-VET."

G. F. MARSHALL & SON, Monroe, Iowa.

Owners of Silver Cup Herd of Poland Chinas.

Test It 60 Days At Our Risk You can test SAL-VET 60 days at our risk. Go to your dealer and get a supply on our absolute guarantee that it will do all claimed for it or money refunded. If he cannot supply you write to us. Don't continue wasting high priced feed by feeding worm infested stock.

NOTE—We have just issued a New Live Stock Book that will be sent free on request.

THE FEIL MFG. CO., Chemists, Dept. 80 Cleveland, Ohio

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RED TIP

CONSERVATION. Conserve time, money and your horse's strength by using **RED TIP CALKS**

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THE NEVERSLIP WORKS, New Brunswick, N. J.



"We Want Cooked Food"

So does every sensible hog. Cooked Food tastes better, digests easier, goes farther, and makes more meat profit. Send today for "Growthy Porker's" message explaining the advantages of cooked food and giving details about

HEESEN COOKERS

Tank Heaters, Hog Troughs, etc. 60,000 farmers in America are boosting profits, cutting feeding cost and eliminating disease among cattle, hogs, sheep and poultry, by using Heesen products. Help your country. Save the grain. Cook your stock food and make it go farther. And you can also use the cooker for rendering lard, heating water, boiling syrup, etc. Write today for circular.

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for a small investment to reap the bene-
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Herd established in 1900, Trojan-Ericas and Black
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WOODCOTE STOCK FARM, Ionia, Mich.

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Bulls, Cows and Heifers for
sale. **GEO. HATHAWAY & SON, Ovid, Mich.**

ABERDEEN-ANGUS Seven bull calves
for sale. **T. E. CRUICKSHANK, R. 2, Ewart, Mich.**

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We have for sale a choice lot of young stock from
A. R. dams. Also a few mature cows. Write for
particulars.

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School for the Deaf, Flint, Michigan

Registered Guernseys

Stock always for sale. May Rose Strain—Herd Tuber-
culin tested annually. Never had a reactor—no
abortion. **J. M. WILLIAMS, North Adams, Mich.**

GUERNSEYS, must reduce herd, so offer a few choice
females of Glenwood breeding also bulls, all stock
of A. B. breeding, herd tuberculin tested. Do not write
about females but come at once as they are priced to
sell. **T. V. HICKS, Battle Creek, Michigan.**

GUERNSEYS—REGISTERED BULL CALVES
Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

Guernseys—For Sale, four young
registered cows. Tubercu-
line tested. **Geo. N. Crawford, Holton, Mich.**

Guernseys Registered and Grade cows, bulls,
yearlings, heifer calves; will sell
20. Some with records; choice of 45; must reduce herd;
tuberculin tested. **Avondale Stock Farm, Wayne, Mich.**

**REG. Guernsey bull 2 years old, prize winner, a few
cows, also bull calves, May Rose breeding.**
JOHN EBELS, R. 2, Holland, Michigan.

Cluny Stock Farm

100 Registered Holsteins 100

For Sale—Nicely marked 7 mos. old bull. Sire,
Dutchland Colantha Winana Lad No. 114067, Grand
Champion Bull at Michigan State Fair 1917. Dam
a 19.2 lb. Sr. 2 yr. old. She produced in first four
milking periods 50,654.6 lb. milk (private record),
average 37.8 lb. a day. Dam's dam, a 20.8 lb. cow,
produced in first eight milking periods 92,417 lb.
milk. If you are looking for producing qualities,
send for pedigree and price on this one.

R. Bruce McPherson, Howell, Mich.

REG. HOLSTEINS: Herd headed by Albina Bonte
L. Butter Boy No. 93124. Dam's record at 6 yrs. butter
28.53 lbs. milk 619.4. Yearly record at 2 1/2 yrs. butter
802 lbs. milk 1862 lbs. W. B. READER, Howell, Mich.

For Sale A Yearling Heifer, pure bred Hol-
stein, Sire, Colantha Johanna Cream-
elle Lad, Dam, Elizabeth Segis Lyons. If you want
something good, write, Geo. D. Clarke, Vassar, Mich.

Registered Holstein Friesian Heifers. 3 to 6
mos. old. Some from 30 lb.
sires. Priced to sell. **Fred J. Lange, Sebawaing, Mich.**

I Always Have Holsteins To Sell

If wanting Registered cattle write me your wants
before placing your order elsewhere.

L. E. CONNELL, Fayette, Ohio

Buy Your Bulls From Parham's Pedigree Stock Farm
Choice Registered Holstein calves from A. R. O. cows.
RAY B. PARHAM, Bronson, Michigan.

3 Holstein Heifers 30.21 lbs. sire. Their dam's
dam A. R. O. sister to dam
of 35 lb. cow, bred to 3/4 brother to 30 lb. 4 yr. old. Terms
if wanted. **M. L. McLAULIN, Redford, Michigan.**

"TOP-NOTCH" HOLSTEINS

"Milk production is an inherited ability. Good cows
must be bred to good pure-bred bulls if progress in
dairying is to be made."
Extract U. S. Dept. of Agric. Bulletin.

Here is a young bull with inherited ability, and rare
individual merit. He was born Dec. 24, 1915.
Butter 7 Days 33.62
His Sire's Dam's 130.73
Record Milk 30 Days 265.70
Butter 1 Year 638.41
Milk 1 Year 18675.80
His Sire's Sire's three nearest Dams average Butter
7 Days 30.87. (Including a junior three and senior
four yr. old.)
His Dam's Record (Butter 7 Days 21.24
3 Yrs. 14 Days (Milk 7 Days 452.8
Dams' Dam (Butter 7 Days 29.40
Almost 30 lbs. Butter 7 Days
About 1/2 white. Price low for this quality.

McPherson Farms Co., Howell, Mich.

HOLSTEIN BULL CALF. Fine individual, four
months old, pure bred,
farmers prices. **A. R. GRAHAM, Flint, Mich.**

On Our Easy Payment Plan any registered
Holstein Bull calf in our stables. Prices from \$50 up.
Ypsilanti Farms, Ypsilanti, Michigan.

HOLSTEIN FEMALE

Fifteen head of cows, heifers and calves
for sale. Some have A. R. O. Records
above 21 lbs. butter in 7 days, and all
will average by their 6 to 7 nearest test-
ed dams over 22 lbs. butter in 7 days.
Grand daughters of King of the Pontiac
and King Segis.

Extraordinary fine breeding at less
than auction prices.
All bred to calve before March.

BIGELOW'S HOLSTEIN FARMS,
BREEDSVILLE, MICH.

OAK LEAF FARM

Ypsilanti Sir Pietertje De Koi
Registered Holstein cows & bull calves fine individ-
uals cows safe in calf satisfaction guaranteed.
E. H. Gearhart & Son, Marcellus, Mich., R. No. 4.

WINWOOD HERD REGISTERED HOLSTEINS

Holton, Mich.

Reference: Old State Bank, Fremont, Mich.
Flint Maplecrest Boy sire in service
His sire is Maplecrest Korndyke Hengerveld, his 3
Nearest Dams each over 30 lbs. of butter in 7 days.
His dam and grand dam both made over 100 lbs. of
butter in 1 year. It is the yearly cow we are looking
for to deliver the goods. Flint Maplecrest Boy's Dam is
Gluck Vasser Bell, 30.57 lbs. of butter in 7 days and 120
lbs. in 30 days. Her butter fat test is 5.27. This looks
about right to the man who goes to the creamery.
We have Bull Calves from 2 weeks to 8 months old for
sale at dairy farmers' prices all out of A. R. O. Heifers.
Write & tell us the kind of a bull you want.

John H. Winn, (Inc.), Holton, Mich.

Dairymen—With Feed Costs Rising
Where Are Your Profits?

The Money-Making Cows Today are
Pure Bred HOLSTEINS
they give enormous yields of milk
and butterfat at lowest feed
and labor costs.

Write for Free Information.

THE HOLSTEIN-FRIESIAN ASSOCIATION
OF AMERICA, Box 164, Brattleboro, Vt.

REG. Holstein Bull Calf. The last one until winter.
A good one with A. R. O. backing. Write for ped-
igree and price. **Elmer E. Smith, Redford, Mich.**

FOR Sale One registered Holstein bull calf. Sire's
twenty nearest dams have 7 da. records av. 25.53 lb.
butter. Dam to be tested. A finely marked, growthy
individual. **Long Veiv Farm, R. 3, Box 10 A, Rochester, Mich.**

FOR Sale, Reg. Holstein bull calf born Sept. 15.
Half white, in show form, College Sire, A. R. O. dam
price low. **C. L. HULETT & SON, Okemos, Mich.**

2 CHOICE Holstein bulls nearly old enough for
service. No. 1 born January 24, 1917, sire's dam,
grand-dam and great-grand-dam's semi-official records
average 842 lbs. butter. Dam of calf 18 lbs. butter 7 days
senior 2yr.-old, average per cent fat 4.3. No. 2 Sired
by 23 lb. bull and out of a 14 lb. junior 2 yr.-old.
C. L. BRODY, Owner, Port Huron, Mich.
Chas. Peters, Herdsman, Three Rivers, Mich.

Butter Fat Counts

Holstein Bull Calves from a 30 lb. 6.53 Sire, Dam
are grand daughters of the King of the Pontiacs.
Their dams grand daughters of Saddle Vale Concordia
the first 30 lb. cow. **Edwin S. Lewis, Marshall, Mich.**

For Sale 10 Registered Holstein Heifers
from 1 1/2 to 2 years old. (Some in calf, overstocked and
will sell at the right price.
Starkweather Stock Farm, Northville, Mich.

Jersey Bulls for Sale from high-producing dams, with
testing Asso. records, also on
semi-official test. **C. B. Wehner, R. 6, Allegan, Mich.**

Hillside Farm Jerseys. Old bull backed on both
sides by R. of M. dams with high official records.
C. & O. DEAKE, Ypsilanti, Michigan

Little Farmstead Jersey Cattle. Bull calves from R
of M. Cows, also heifer calves and several bred
heifers for sale. **Colon C. Little, Coopersville, Mich.**

For Sale Two registered Jerseys bull calves. Splen-
did individuals. Good pedigrees. Priced to
sell. **Long Veiv Farm, R. 3, Box 10 A, Rochester, Mich.**

FOR sale, 2 yr. old bull out of a R. of M. dam record
538.8 lb. butter in one yr. sire, majesty's Wonder a
R. of M. sire with 10 daughters in the R. of M.
Write **FRED A. BRENNAN Sec., St. Clair Co. Jersey Cattle Club, Capac, Mich.**

Maple Lane R. of M. Jersey herd offers for sale
tuberculin tested cows, bulls, bull
calves carrying the best R. of M. blood of the breed.
IRVIN FOX, Allegan, Mich.

The Wildwood Jersey Farm
offers for sale choice young bulls from R. of M. dams,
good enough to head any herd. We invite inspection.
ALVIN BALDEN, Capac, Mich.

FOR SALE Registered Jersey bulls,
ready for service.
SMITH and PARKER, R. 4, Howell, Mich.

40--SHORTHORNS--40

5--Percheron Mares--5

1--Yearling Belgian Stallion--1
Will be sold at auction at the farm near
Elsie, Mich., Monday, Nov. 19, at 10 a. m.

Thirteen Cows, some with calves, six
two year old bred heifers, 12 open heif-
ers, 8 young bulls. Never before in a
Mich. Sale Ring has there been an op-
portunity to secure such pure Scotch-
bred cattle. The catalog tells the tale
and should be in every good breeder's
hands. **C. M. Jones, Bixby, Miller,
Rowell & Convis, Auctioneers.**
H. B. Peters, Prop., Carland, Mich.
R. R. Station Elsie.

Shorthorn Cattle of both Sex for Sale
W. W. KNAPP, Howell, Michigan.

FOR Sale—Reg. Short Horn Bulls by Maxwell
Monarch 2nd, a son of Avondale, from 1 to 12 mos.
old. **John Schmidt, Reed City, R. No. 5, Michigan**

Grange.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Treasurer—Frank Coward, Bronson.
Lecturer—Dora H. Stockman, Lan-
sing.
Secretary—Jennie Buell, Ann Arbor.
Executive Committee.—Jas. Helme,
Adrian; Geo. B. Horton, Fruit Ridge;
J. W. Hutchins, Hanover; W. F. Tay-
lor, Shelby; Wm. H. Welsh, Sault Ste
Marie; N. P. Hull, Dimondale; Burr
Lincoln, Harbor Beach.

THE GRANGE AND THE FARMER.

(Continued from last week).

Dealers are getting from two to five
dollars a ton for handling feed this
summer, and considering the way in
which they must do it, their profit is
not too great. But it is not necessary
to do it in this way. The Granges of
the state should be associated with a
few large reputable milling companies
who could furnish all mill feeds first-
hand at current prices. The terms of
payment should be always, "Sight
draft attached to bill of lading." We
can never get lowest prices on feeds
while we ask companies to wait until
secretaries of Granges deliver goods
and collect the money. But we should
not only be connected with large mill-
ing companies but we should extend
our purchases far to the south, the cen-
ter of production of cottonseed meal,
and should be able to furnish that prod-
uct as low as anybody in Michigan
can obtain it. Our members are buy-
ing trainloads of cottonseed meal ev-
ery year. They buy it by the single
bag, or in lots of a few hundred pounds
for the most part, and they have to
pay each distributor who has handled
it since it left "The Sunny South," and
they have all charged enough for the
handling. We ought to be able to cut
all of this out and go direct to the
original source of supply, and bring
our cottonseed meal in carlots by the
shortest road to the town, large or
small, where it is to be distributed to
the farmers who will feed it. It ought
to leave the mill down south and never
rest until it is in the farmer's store-
house.

Think of the people on farms who
buy their flour. Our soft Michigan
wheat does not make good bread flour,
and so we buy hard wheat flour, either
winter or spring wheat from the west.
This flour is shipped in carlots to dis-
tributors in the state, or else the wheat
is shipped and ground here, and then
often the flour is blended with that
from Michigan wheat.

It may be that the introduction of
hard Michigan wheat will lessen the
demand for western varieties, and also
for western flour, but it is too much to
hope that this demand will disappear
entirely, or be greatly lessened for
some time to come. In every section
where farmers buy their flour in whole
or in large part, they should get it in
carlots and distribute it at the station.
It is simply a matter of good business
that they should do this, and right
here is an opportunity for Granges to
serve their respective communities.

Another way in which the Grange
might better serve the farmer, is in the
matter of legislation proposed in which
he is interested. The inaction of sub-
ordinate Granges last fall, when the
bill providing for "The Torrens Sys-
tem of Land Registration" was up for
initiation by petition, was regrettable,
to say the least. Designing men, who
would prevent the passage of any and
all bills limiting the profits of abstract
companies, say that farmers do not
want "The Torrens System." Of course
we who know the people of the coun-
try know better, but nevertheless, the
claim has force in it, when we consider
their inaction.

(To be continued).

Farmers' Clubs

Address all communications relative
to the organization of new Clubs to
Mrs. J. S. Brown, Howell, Mich.

FARMERS' CLUB FAIRS.

The Washington Center Farmers'
Club held its fair at the Town Hall on
Thursday, October 11. We did not
have the usual chicken-pie dinner, but
each one brought their own lunch
which was spread upon a long table
and served with hot coffee. The ex-
hibits were not as plentiful as in more
seasonable years, but in glancing over
about one hundred articles, including
some very beautiful fancy work, show-
ed that the spirit of the Farmers' Club
was not on the decline and there would
be plenty for our army of workers in
Washington township and some to
spare. After the noon hour the house
was called to order by Vice-president
Mrs. O. J. Campbell. Two schools,
Miss McEnderfer's, of District No. 3,
and Mr. Schnieder's, of Washington
Center, dismissed for the afternoon
and entertained the more than one
hundred visitors and members with
songs and recitations. "The Best Crop
on the Farm—Our Boys and Girls,"
showed when older ones are unable to
perform a duty, they are able and will-
ing to fill the place. Mr. Chambers,
our county agent, gave an interesting
talk on "Thoroughness," which every
farmer should practice and receive less
worry and more encouraging results.
The next in order was the raising of a
flag pole and hoisting of the flag for
the Center School, while the company
sang "We'll Rally Round the Flag." The
next meeting will be held at Shade-
lands, the home of Mr. and Mrs. O. J.
Campbell, on the second Thursday of
November. A chicken-pie dinner will
be served.—Cor. Sec.

CLUB DISCUSSIONS.

The Benefits of Food Administra-
tion.—At a recent meeting of the Con-
way Union Farmers' Club the question,
"Will the farmer, dealer and manufac-
turer be equally benefited by the pres-
ent food administration?" was opened
by A. B. Cook. Mr. Cook thinks the ob-
ject of the new food measure is to han-
dle the food products so that the con-
sumer can buy at the least cost and
still the producer may have a good
profit. The actual producer does not
realize his share of the maximum
price. The man who does realize the
maximum price does not have a hand
in raising the crop. The bill which
passed congress aims to give farmer
and miller the same basis, and to give
to each a good remuneration with little
speculation. Heretofore agencies have
taken hand in raising price for selfish-
ness. The present food administration
is meant to encourage the farmer to
stay on the farm. Mr. Cook thinks
farmer, dealer and manufacturer will
be benefited for each will be treated
on the same basis. The question was
also discussed by Glen Burkhardt. He
said the elevators are required to have
a license and report each week the
quantity, price and where the grain is
shipped. The government has a right
to hold space in elevators and storage.
A man has been sent through cities
and villages to take the capacity of
elevators and storage hay buildings.
Speculation is poor business. In the
end the speculator goes to the wall.
The present food administration is an
incentive to the farmer to produce
maximum crops and both producer and
consumer will receive good remunera-
tion. Mrs. Clarence Fuller read a pa-
per on the question, "Is it advisable
for the housewife to buy provisions
ahead?" She said it is a natural ten-
dency when the price is low to buy and
store for the future, but now when the
best of our nation are going away to
fight for this great country of ours, we
should be careful in buying. We do
not know the future needs of our great
army and any prudent housewife
should not buy ahead for any great
length of time and exhaust the supply.
In case sugar should unexpectedly low-
er fifty per cent in price, many house-
wives would naturally order a supply
for a length of time, which would not
only exhaust the supply, but cause the
price to rise much higher. Under pres-
ent prices and in the present crisis a
housewife should only buy what is
needed for her household.—Mrs. Ray-
mond Allen, Sec'y.

Washtenaw County Holstein-Friesian Cattle Breeders' Club Sale

Ypsilanti, Michigan

(At Ypsilanti Farms, 1 1/2 Miles West of City on Electric Line)

Wednesday, November 14, at 10 A. M.

The sale will comprise over 50 head from the herds of the members of this Breeders' Club. Over half of the offerings are cows fresh or bred to high-class sires to freshen through this fall and winter.

FIFTEEN GRANDDAUGHTERS AND SIX GREAT GRANDDAUGHTERS OF KING OF THE PONTIACS AND PONTIAC KORNDYKE are among the attractive offerings.

KING PONTIAC JEWEL KORNDYKE No. 94184 will be offered, simply because the herd which he has headed for four years finds it necessary to avoid inbreeding to dispose of him. He is a son of the KING OF THE PONTIACS, the greatest living dairy sire with more 30-pound daughters, more 40-pound daughters, and more ARO daughters than any other living sire. His dam is a daughter of De Kol 2d's Butter Boy 3d, and his granddam a daughter of Pontiac Korndyke. He has 10 A. R. O daughters to his credit and many more com-

ing on to test. This is an unusual opportunity for one or more breeders to procure a tested sire, gentle and all right in every way and right in his prime.

Other sires represented in the offerings in this sale are King Lunde Pontiac Korndyke 15th, No. 142487, out of a son of King of the Pontiacs and a daughter of Pontiac Korndyke; Mercena De Nijlander No. 149013, out of a son of Pontiac De Nijlander (35 lbs.); Sire Mina Korndyke No. 129169; King Hartog Elzever No. 70642; Vale Piebe Paul De Kol No. 44073; Ordello Lyons 2d's Count No. 35419; Woodcrest De Kol Lad No. 45103; Elzever King of Butter Kings No. 71595.

GET YOUR CATALOG AND COME TO THIS SALE. There will be attractive offerings for the discriminating breeder able to pay any price, for him who desires to get started in pure-bred cattle at a moderate price, and for him who has grade cattle and recognizes the profit in using a pure-bred sire.

Address WILLIAM B. HATCH, Secretary, Ypsilanti, Michigan

Jerseys and Duroc Jerseys

The most important thing in buying a Jersey bull is to get one backed up by generations of high producers. Brookwater offers to sell a few choice bull calves of this kind. Our herd of Durocs has won more prizes at the State Fairs this year than any other.

Boar Pigs and Yearlings For Sale.

H. W. MUMFORD, OWNER

BROOKWATER FARM

O. F. FOSTER, MANAGER

Ann Arbor, Mich., R. 7.

"BULLY" BARGAINS at Long Beach Farm, Augusta, Mich.

Choice Holstein bulls, \$30 up. 4 to 14 mos. old from A. R. O. dams from noted families. Our Junior Herd Sire is stated to be a world beater. His sire is Spring Farm King Pontiac 6th. His dam a 28.63 lb. 6 yr. old daughter of DeKol 2nd Butter Boy 3rd. You should have our illustrated booklet. Our herd is under state and Government supervision.

FOR SALE Thoroughbred Jerseys Stock Calves and yearlings, all eligible for registration. Too many to list. Belding Land & Improvement Co., Belding, Mich.

BIDWELL SHORTHORNS

For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for sale; also good Scotch-topped cows and heifers. Modern, sanitary equipment. One hour from Toledo, Ohio. N. Y. O. R. Y. Visitors Welcome. Write us.

BIDWELL STOCK FARM Box B, Tecumseh, Michigan.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Oram, Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

SHORTHORNS Maple Ridge Herd, Established 1867. No stock for sale. J. E. Tanawell, Mason, Michigan.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos. 3 roan, 1 white, 1 red, price \$150, to \$250. Son of Maxwellton Sultan, 19 mos. \$350. C. Carlson, Leroy, Mich.

Bates Shorthorns the original milk strain young bulls 8 mos. old for sale. Price \$150 to \$200. J. B. HUMMEL, Mason, Mich.

Shorthorns Bulls 9 mos. to 12 mos. old from good milking cows. Prices reasonable. COLLAR BROS., R. 2, Conklin Mich.

Registered Shorthorn Bulls 12 to 16 mos. old \$125. Shropshire sheep. W. J. Leaster, Belding, Mich.

Milking Shorthorns: Bull calf 5 mos., by a Grandson of General Clay, dam by a son of General Clay. \$150. A few females. S. E. BOOTH, Morrice, Mich.

For Sale Shorthorns; 5 females from 2 years to 6 years old, two bulls from 6 mos. to 9 mos. old. FRANK ROHRBACHER, Laingsburg, Mich.

Registered Shorthorn calves sired by Diamond King 2nd, 40475, both sexes \$150. Twenty cows \$250 each. WM. J. BELL, Rose City, Mich.

For Sale Shorthorns Bulls 6 mos. to 2 years old R. R. Clyde Station, H. J. DeGarmo, R. 6, Milford, Mich.

For Sale Beef Herd

Twenty-three head of high grade Herefords, females coming three years old bred to calve next May. Three year old pure bred bull. Price of herd \$2800.

JAS. N. MCBRIDE, Burton (Shiawassee Co.), Mich.

Meadow Brook Herfords Two 2 yr. old bulls, 3 yearlings and 15 calves for sale. EARL C. MCCARTY, Bad Axe, Mich.

Shorthorns both sexes, herd catalogue mailed free. CHARLES B. HOBBS, Hart, Mich.

Feeders For Sale We have six car loads of well bred Shorthorn grades. We can sell these so as to save you money as compared with Chicago. Free from contagious diseases. Write for further information. The Jennings Farms, V. M. Shoemith General Manager, Bailey, Mich.

SHORTHORNS. Butterfly Sultan, half brother to International Sr. Champion, in service. For good bulls, cows, and heifers. W. B. McQuillan, Howell, Mich.

FOR SALE Reg. Red Polled Bull 1 yr. old bred to sell. JESSE T. FOX, Prattville, Mich.

Cattle For Sale Loads feeders and two loads yearling steers. Also can show you any number 1, 2 and 3 years old from 600 to 1200 lbs. Isaac Shanston, Fairfield, Iowa, R. 8.

HOGS.

Durocs and Victorias Heavy bone, lengthy Spring Boars and Gilts from prize winners sired by one of the best sons of the Great Defender & other noted strains. M. T. STORY, Lowell, Mich.

SWIGARTDALE BERKSHIRES

We are offering a few very desirable gilts and boar pigs. All will be of good size for breeding and service by December 1st. Though we have not pushed them they have made about 1 lb. per day for their age. We do not claim to have the cheapest in price but we do claim to have the best in quality and type.

SWIGARTDALE FARM PETERSBURG, MICHIGAN

Duroc-Jerseys One Yearling Cherry King Boar, Gilts bred for fall farrow. J. H. BANGHART, East Lansing, Mich.

Duroc Sows and gilts bred to Eureka Cherry King and Crimmon Critic son of Critic Model 1916 champion Iowa Fair. W. C. Taylor, Milan, Mich.

DUROC BOARS AND SOWS The biggest, longest, growthiest and best bred of Spring boars. 31st fall boars by Panama Special 66383. This fall's boars \$20, pair, not akin \$40. NEWTON BARNHART, St. Johns, Mich.

Pinehurst offers: Registered Spring Boars, tried brood sows, One Great Herd Boar. Write your wants. Orlo L. Dobson, Quincy, Mich.

DUROC Boars. First, Second and Third Prize Boars at State Fair 1917 get in your order for a herd boar at once. Plum Creek Stock Farm. F. J. DRODT, Prop. R. 1, Monroe, Michigan

Auction Sale

50--Holstein-Friesian Cattle--50

Having decided to lease our farm, we will sell at public auction, at the Callam Stock Farm, on Janes St., 4 miles east of the city of Saginaw, Michigan, on

Thursday, November the 8th, 1917

At 9 o'clock In the Forenoon

our entire herd of choice pure bred registered Holstein-Friesian Cattle, and also all of our choice Holstein-Friesian grades, together with fifteen head of heavy, young, well matched draft horses and all farming implements and machinery.

The cattle are all young Holstein-Friesian cows. There are 20 head of choice, royally bred, registered Holsteins. Several advanced registry records. Twelve are daughters of A. R. O. cows. 13 are granddaughters of King Fayne Segis. 40 are in calf to a grandson of K. P. Pontiac Lass, the first cow in the world to make 44 lbs. of butter in 7 days. 30 are springers and fresh young cows, and substantially all are daughters of the A. R. O. sire, King Keka Fayne, a son of King Fayne Segis, the sire of Segis Fayne Johanna, the only 50 lb. cow in the world.

Five bulls will be offered for sale, including our herd bull, Spring Farm Pontiac Cornucopia 4th, a grandson of K. P. Pontiac Lass, and whose dam has an A. R. O. record of over 22 lbs. of butter in 7 days as a 4 year old. His sire is the \$15,000.00 bull, Spring Farm Pontiac Cornucopia.

This herd for a number of years has been under State Supervision and is free from disease and a certificate of a licensed veterinarian, approved by the State Veterinarian, showing that each animal is free from tuberculosis, will be furnished. Nothing will be reserved from this foundation herd. Every animal will be sold to the highest bidder.

Automobiles will run from the Bancroft Hotel at Saginaw, to the farm on the date of the sale, November 8th.

Catalogues will be ready November 2nd, which may be had on application to John F. O'Keefe, Sales Manager, Saginaw, Michigan.

One Year's Time Will Be Given to Responsible Parties

CALLAM STOCK FARM

Duroc Spring Gilts and fall boar pigs of the finest breeding. E. E. CALKINS, Longacres, R. 6, Ann Arbor, Mich.

Durocs A few good males sired by Joe Orion 2nd Dam by Orion Ch. King Jr. A. FLEMING, Lake, Mich.

FOR SALE two good yearling Duroc Jersey Boars Registered by Edward F. No. 70193 out of Orion Cherry Lass No. 168726. W. E. SCRIPPS, WILD WOOD FARMS, Orion, Mich.

Duroc Jersey Spring gilts and fall pigs either sex. E. D. HEYDENBERG, Wayland, Mich.

DUROCS of good quality and breeding, yearling and spring pigs of April farrow, priced cheap for quick sale. H. G. KEESLER, Cassopolis, Mich.

DUROC BOARS If in need of a big growthy spring boar at a reasonable price. Write at once. RUSH BROS., Romeo, Mich.

DUROCS for sale, 1 fall boar, 7 Spring boars, good breeding. Write for description and prices. J. D. CRANE & SON, Plainwell, Mich.

Duroc Jersey: Extra good spring pigs for sale. CAREY U. EDMONDS, Hastings, Mich.

FOR SALE Duroc-Jersey Registered yearling Boar, Cherry King blood. FRED LAWLER, Augusta, Mich.

Big Type O. I. C's. Stock of all ages for sale. We showed at four state fairs and won more champions and Grand Champions than all the other breeders together double, we were Premier Breeder and Exhibitor at every fair we showed. We breed the best. We sell the best. We guarantee them to be the best. Write your wants. Get our Catalogue. We ship on approval. CRANDELL and SON, Cass City, Mich.

Raise Chester Whites
Like This
the original big producers

I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—'More Money from Hogs.' G. S. BENJAMIN, R. F. D. 10, Portland, Michigan

CHESTER Whites and O. I. C. for sale. Big type Spring Boars and gilts from prize winning stock for fifteen years. Also some fall pigs. A. B. Combs & Son, R. 2, Allen, Michigan.

Chesters Bred Gilts all sold. Special prices on March boars, also 6 months Holstein Bull. F. W. ALEXANDER, Vassar, Mich.

BOARS Big growthy fellows. The kind that please. I ship C. O. D. and pay express. J. CARL JEWETT, Mason, Mich.

O. I. C. An extra fine lot of last spring pigs, either sex and not akin, from good, growthy stock. Farm 1/2 mile west of depot. Otto B. Schulze, Nashville, Mich.

O. I. C. & CHESTER WHITE SWINE. Strictly big type with quality. Have a choice lot of boars fit for early fall service. These boars will be sold worth the money. Also have some fine gilts. I will ship C. O. D. NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C. Choice Spring boars and gilts out of prize winning stock. All stock guaranteed. The long bodied and Big Boned type. Write for photo and low prices. A. V. HATT, Grass Lake, Mich.

O. I. C. Boars, long bodied, with quality, for fall service. A few registered, extra fine, Shropshire ewe lambs. G. P. Andrews, Dansville, Mich.

O. I. C's: A few prize winning gilts at Michigan State Fair; also Aug. Sept. pigs of the best blood lines. Cloyer Leaf Stock Farm, Monroe, Mich.

O. I. C. Am offering some good boars of May farrow and fall pigs either sex. C. J. THOMPSON, Rockford, Mich.

"POLAND CHINAS"

2 Spring boars—4 Gilts—3 Yearlings Sows. Sired by Big Knox Jr., a 900 lb. boar at 22 months old, his sire Big Knox weight 1060 lb. at Iowa State Fair 1912. The dam, Allans Miss Orphan, a big growthy prize winning sow sired by Hadley Over, 1st at International Chicago in 1912. We have a couple of July and Aug. pigs from such sires as Big Knox Jr. Big Defender Jr. and Big Hadley. We can pick you out pairs and trios of these pigs at \$25 each, here is a chance to buy the best of the breed at a moderate price! ALLEN BROS., Paw Paw, Mich.

Big Type Poland Chinas. We are offering a few Spring Boars by that Great Thousand Pound Grand Champion Boar, HILLOREST WONDER, from sows by our Great Herd sire, HILLOREST DEFENDER, some of them great herd head ers. We have five gilts by HILLOREST COMMANDER, July 13th farrow, that will make crackerjack brood sows at \$25 each, for quick sale. HILLOREST FARM, Kalamazoo, Michigan.

Big Type Poland China, Apr. boars, sire and dams from 1000-lb. stock; can be returned if not satisfactory. B. W. MILLS, Saline, Mich.

BOARS--SOWS

Big type big bone. For the next 30 days we will sell Big type Poland Chinas at bargain prices. April boar weighing 300 lb. Open gilts. Summer and fall pigs everything goes. Get busy. J. C. BUTLER, Portland, Michigan, Bell Phone.

LARGE Type P. C. Largest in Mich. Spring Boars ready to ship. The kind that make good. Come and see the real big type kind. Expenses paid if not as represented. Free livery from Parma. W. E. LIVINGSTON, Parma, Mich.

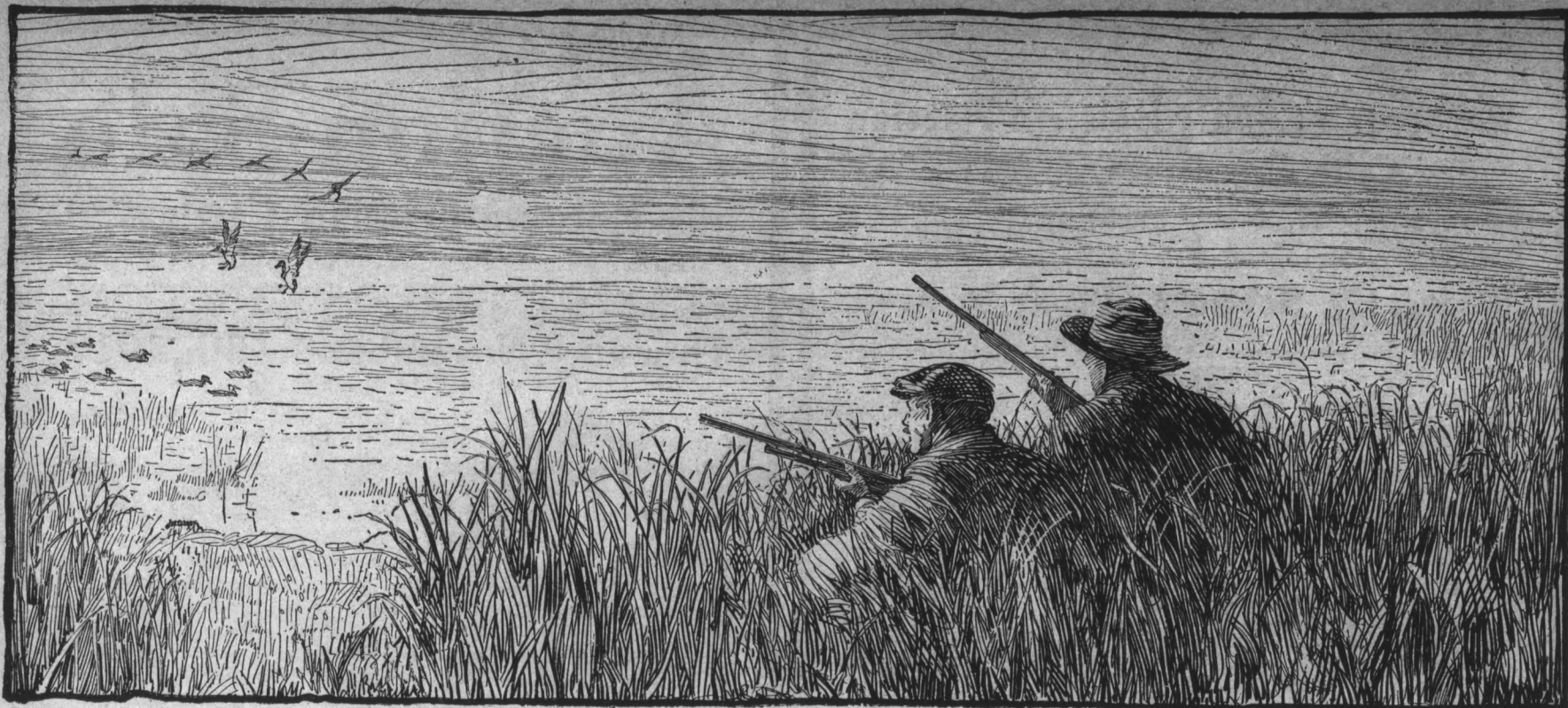
Big Type Poland Chinas: April and May pigs, healthy, ready to ship. The kind that make good. Prices right. L. W. BARNES & SON, Byron, Mich.

LARGE Type P. C. Some growthy spring Boars and Gilts ready to ship, come and see them. Free livery from Augusta. W. J. Hagelshaw, Augusta, Mich.

Poland Chinas large and medium type. Prices low for quality of stock. P. D. Long, R. 8, Grand Rapids Mich.

Big Type Poland China boar now ready to ship, buy now and get choice. G. W. HOLTON, KALAMAZOO, MICHIGAN.

Additional Stock Ads. on Page 421



Winchester Model 12.
Hammerless Shotgun.

Why more duck hunters choose this model than any other

If there's ever a place where you need a gun that's a hundred per cent reliable, it's when you're down in the damp salt marshes after duck.

Whatever gun you may start with, if you keep on long enough, you will come around to the Winchester No. 12 Repeater. It is the favorite in the long run with old duck shooters.

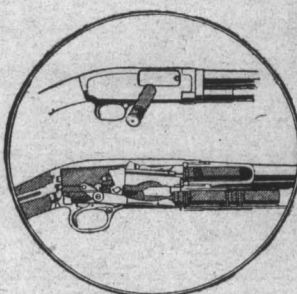
In the damp salt air of the seashore and swamps this gun never "gums." Under the most severe conditions it is a sure-fire, sure-to-work Repeater. It will not jam, catch, or fail to extract the empty shell. It "feels" right, "comes up" right, and is right. It works smoothly in whatever position it is held.

At the distance at which you get most chances at ducks, this gun shoots an effective uniform pattern of great game-getting penetration.

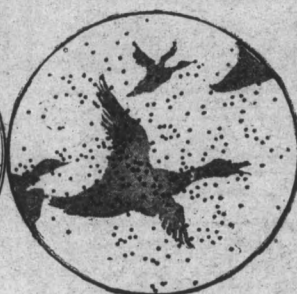
The pattern that brings down the game

The remarkable game-getting pattern of the Winchester Model 12 (or the Model 97 for those who prefer a hammer gun) shooting its own standard ammunition, is the result of infinite care taken in boring the barrel.

The right amount of choke for different loads has been worked out after exhaustive experiment. Result: a pattern that spreads out evenly—neither too scattered nor too bunched—and lands with lots of steam behind it.



Quick feeder, sure ejector.
Throws empty shell to the side, out of your way.



Even spread, maximum penetration. Winchester shot pattern brings down the game.

The barrel is the gun

Men who know guns realize that the accuracy and durability of a gun lie in the barrel. On the quality of the barrel depends the quality of the gun. There is absolutely no difference in the standard of quality of the barrel on the highest and lowest priced Winchester guns. With Winchester the barrel is the gun and the single standard of quality has been attained only by the most unremitting attention to the boring, finishing and testing of the barrel.

The Winchester barrel

The barrel of the Winchester Model 12 has been bored to micrometer measurements for the pattern it is meant to make. The degree of choke exactly offsets the tendency of the shot to spread. Until its pattern proves up to Winchester standard, the gun cannot leave the factory. The Nickel Steel construction preserves the original accuracy forever. The Bennett Process, used exclusively by Winchester, gives the Winchester barrel a distinctive blue finish that, with proper care, will last a lifetime.

For those who prefer a hammer action shotgun, we have made the Model 97. It is built on similar lines to the Model 12, but with hammer action.

What  means

This mark on the barrel means *Viewed and Proved Winchester*. This stamp stands for Winchester's guarantee of quality, with fifty years of the best gun-making reputation behind it.

Every gun that bears the name "Winchester" and that is marked with the Winchester Viewed and Proved stamp has been fired many times for smooth action and accuracy, and has been fired with excess loads for strength.

At every stage of Winchester manufacture, machine production is supplemented by human craftsmanship. It is a *test and adjustment process*.

It is this care in manufacturing that has produced in the Model 12 and Model 97 guns of unsurpassed game-getting qualities that have won the name of "The Perfect Repeaters" among duck hunters.

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Winchester Model 97 Hammer Shotgun
Take-down Repeating Shotgun. Made in 12 gauge, weight about 7½ lbs.; in 16 gauge, weight about 7¼ lbs. The favorite with shooters who prefer a slide forearm repeating shotgun with a hammer.

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